CHEMICAL MARKETS

VOL. XXVII NOVEMBER, 1930 No. 5.

Levels

DURING the twelvemonth past the price level of basic commodities—foodstuffs and the industrial raw materials—has declined some fifteen per cent. The drop in the price of chemicals has been distinctly less than of metals and cereals during the past year; but contrariwise our chemical prices fell faster and farther during 1920, and there has been moreover a slow, steady decline almost continuously during last decade.

IF WE might comprehend the full meaning of these basic economic facts it would be most helpful in guiding present action and governing future plans. Possibly we are too close to see the woods because of the trees. Certainly it is an extremely complex situation, and every discussion, even among the experts, is studded with "ifs" and "buts." Nevertheless, we must strive to determine causes, in order to judge results fairly and wisely.

A FAVORITE theory among the financially-minded ones is that our excessively heavy gold reserve as it commonly tends to do, has lowered our price level. This apparently overlooks the fact that the price decline is world-wide. Others aver that installment purchasing has transferred the nation's inventories to the consumer prematurely. Such frozen buying is undoubtedly a drag on current consumption; but it would appear to be more the result than the cause of the present situation. Perhaps the favorite explanation among chemical executives is that the old familiar periodic glut of over-production which marks the climax of booming times is with us again, piled up a little higher than in the past by the increased efficiency of our machines and processes. If this is so, those who cherish the hope of a revival in activity with rising prices are deluding themselves. Normal industrial activity will only return when the retail price levels, together with labor and transportation costs, have been readjusted downwards to the new and lower scale.

THERE are signs of such a scaling down. Semi-finished goods, such as processed fuels, textiles, rayon, fabricated steel, lacquers, and flour, have followed their raw materials to lower levels and the consumer goods made out of them are, on the basis of 1931 quotations, apparently to do likewise. From the chemical point of view then, there is but little wit in endeavoring to stimulate sales by offering bargain prices. Activity in our chemical markets awaits the price adjustments of our customers and our customers' customers.

E·S·C·S

EAST SOUTH CENTRAL STATES

Here in the very heart of the domain of King Cotton, an industrial giant is already disputing his supremacy. Great deposits of ores and potentially huge water power are at the command of industry. And serving this increasingly important territory are the two "American" Alcohol plants . . . at Pekin, Illinois, to the north and Gretna, Louisiana, to the south.

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"American" is in an advantageous position to meet industrial requirements. Four producing plants. Scientific equipment. Skilled personnel. And distillation processes of scientific exactitude.

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Ethyl Lactate	Dibutyl Tartrate
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Pekin, Ill.	Philadelphia, Pa.
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Herbert H. Dow

American chemical industry has lost, in the death of Herbert H. Dow, a shining example of the modern chemical industrialist. He possessed a rare combination of inventive genius and business acumen. Equally conversant with the intricacies of the laboratory and the problems of manufacturing and merchandising, he brought to his enterprises a natural endowment seldom found in one man. Aside from his technical contributions, specially in the fields of the halogens, and magnesium, Dr. Dow will be noted as a pioneer exponent of mass production in chemical fields. His friend, Henry Ford, in recently nominating Dr. Dow for the Chemical Markets Medal placed special emphasis on his ability to reduce costs of finished products through the adoption of modern manufacturing methods. "It has been Dr. Dow's policy promptly to translate the lower costs thus achieved into lower prices. He has played a full part in reducing chemical costs to the consuming industries and thus has helped American industry to supply the ultimate consumer with better goods at lower prices."

A gap has been made in the ranks of our great chemical executives, one that will be difficult to fill. His career is an inspiration and the remembrance of his ability, wisdom, judgment, kindliness and rugged honesty kindles a torch to guide those who remain. He has left behind a living monument—the great Midland plant—which epitomizes his life work.

Employment and Wages

Every once in a while we receive one of those interesting but insignificant documents, the anonymous letter. Our editorial last month on the subject of wages has drawn two lengthy arguments from a correspondent who apparently lacks sufficient courage in his convictions to affix to them his name. We are not ignoring his communications, simply because we want to make them the text from which to preach a doctrine that is not popular to-day; but which we believe is sound.

Throughout the past year there has been a concerted effort on the part of employers not to cut wage scales. This has been vigorously supported by a plausible ballyhoo to the effect that the general prosperity of the country depends upon the buying power of the entire population and that to slash our industrial wage scale would be an indirect way of cutting our industrial throat. This is perfectly true. It is well that this thought should be emphasized and that what is preached should be practiced. But it should not be overlooked that this thought carries with it an economic fallacy closely akin to the foolish theory that the way to national wealth is to carry on a spendthrift campaign of reckless consumption. Either carried to an extreme becomes a great un-wisdom, for which eventually we must pay since it is proverbially true that one cannot rob Peter to pay Paul.

Has not the maintenance of existing wage scales come to this uneconomic point? This was the question that our editorial last month asked. If the decline in commodity prices, which we have been going through, is to issue in a new price era, then most assuredly any attempt to hold labor costs at present levels will end in suicidal philanthropy on the part of those industries attempting to do so. Nor will it be necessary for the workers of the country to receive the wages of the recent past if the purchasing power of the dollar is materially increased.

Technical unemployment is a fact, not a theory. Are we not making it worse by attempting to keep fewer men at work at higher wages? The sum total of workers required to man the industries of the country is less than ten years ago for the same production and will grow less and less as our industrial technique is made more and more perfect. The balance can only be struck by producing more and more goods at less and less cost to be sold at lower and lower prices. The complete argument would require a stout volume; but the implication is fairly plain and the outlook for the country as a whole is surely one of increased comfort and increased leisure.

American Processes Abroad

Fifteen years ago the really correct and fashionable way to act when discussing America's place in the field of pure and applied science was to assume a rather apologetic attitude towards our own accomplishments and to acknowledge as gracefully as possible, Germany's unquestionable superiority. No one will deny that this frame of mind was quite universal, specially so as regards the industrial chemical field.

That those really in possession of the facts questioned the degree of actual truth contained in such statements and exhibited by such actions, is beside the point. The rank and file of lay America accepted as dogma, the teachings of contributors to Sunday supplements and American chemists and engineers were either too busy or too indifferent to make

other than half-hearted attempts to correct this erroneous impression.

Encouraging indeed, then, is the information that the past decade has witnessed the introduction into Germany of such a vast array of American developments that it is not a difficult matter to identify nearly a dozen off-hand. A partial list of the more important would include, the American nitrocellulose lacquer process; a perfected American nitric acid oxidation process; an American catalytic ammonia synthesis; a perfected American process for making titanium white paint; an American process for imparting a wood-grain surface to metal and other bases; a petroleum cracking process that promises to be used in Germany to treat heavier fractions occuring in connection with the hydrogenation of tars; the classic precipitator or electrofilter removing impurities from condensed gases or precipitating therefrom valuable commercial salts; a flotation process for the extraction of metals from ores; the American process for producing contact sulfuric acid by employing a vanadium oxide catalyst and a process for producing plastics by formaldehyde condensation.

Truly a formidable list of major accomplishments and a record of which we may pardonably be proud. We of the chemical industry have an important duty to perform. In spite of the rather popular belief that America transacts its business and moulds its opinions on the golf courses, the average chemist, engineer and chemical business executive is as silent as the Sphinx when the trend of everyday conversation turns to subjects of a technical nature. In the club, at the theatre, on the transatlantic liners, in the home, America learned to cultivate the derogatory attitude towards our scientific accomplishments. Through the same channels the correction must be made.

Undoubtedly the lay public through a wider interest in the financial markets has attained a better understanding of the American chemical industry and its achievements, but, nevertheless the duty rests upon each and every one of us to play a part in spreading the truth where the truth is badly needed.

Now—and Then

While we are in the midst of the usual contract season it is well for sellers and buyers to remember that whatever price action is taken now, will exert a control over conditions, not for a week, or a month, but for an entire year. It would be unfortunate for all if the weakness of a few should lead to market demoralization. Chemical values are not inflated and have not been so for many years. Therefore any drastic reductions will certainly be a bear raid rather than a logical readjustment of price levels.

The buyer as well as the seller can aid materially in stabilizing conditions. A momentary advantage may prove a boomerang in the long run. Sellers, if they will but remember that prices which may appear competitive now may not be attractive six months hence, will find this a check to enthusiasm in creating bargains.

Quotation Marks

In talking about the growth and development of the big units of industry, little mention is ever made of the importance of research departments. Years ago, those departments didn't amount to much, but they are now the most important adjuncts of big industries. It is the new uses for products that research branches have discovered that have made certain lines of industry what they are to-day.—*Wall St. Journal.*

Men of the highest type should be and, we believe, are available for service to the nation. Appointments to Government major positions place a responsibility on those selected which tests the best qualities of leadership and demands men of the strongest caliber. —*Manufacturers Record.*

It takes considerable courage, with calamity howlers all around us, to say that, in our humble opinion, not only do things look better so far as the future is concerned, but also that the paint business, and shellac in particular, IS BETTER.—*Bulls Eye William Zinnser & Co.*

Good news is coming to the fore. Confidence is returning. Mediocre managements are fast being eliminated. Brains are having their inning, and close attention is being given to the important job of saving time, effort and material.—*Floyd Parsons, Industrial Gas.*

Fifteen Years Ago

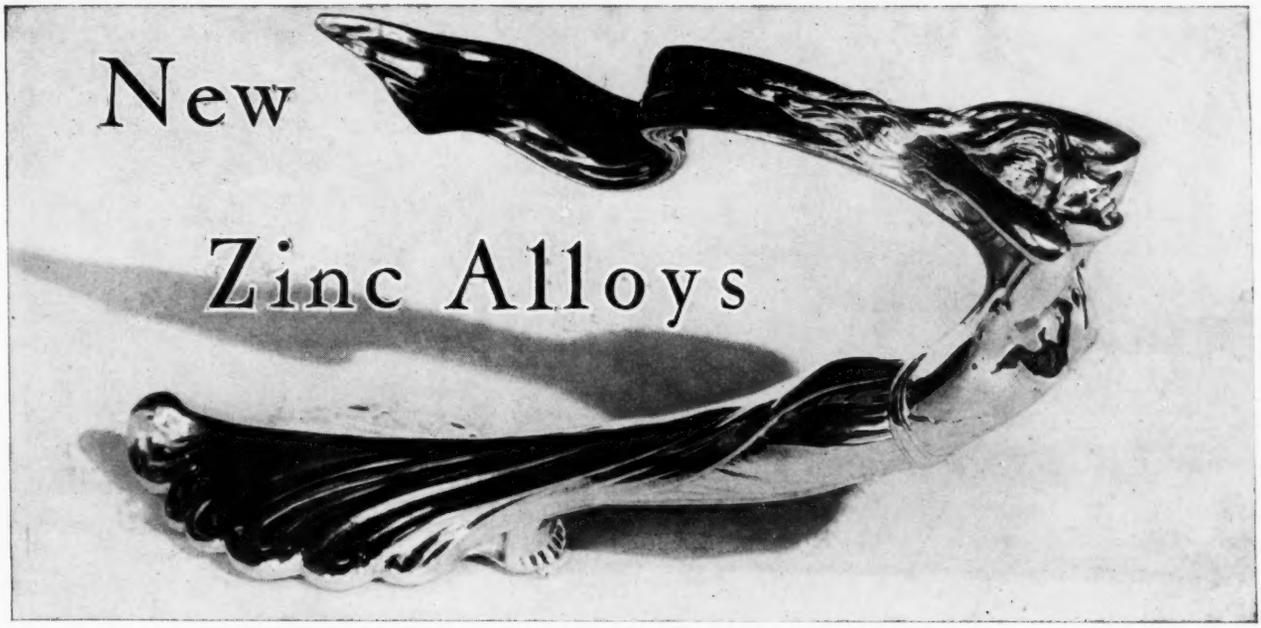
(From our issues of November 1915)

Roessler & Hasslacher Chemical Co. received a gold medal at the Panama-Pacific International Exposition, San Francisco, for its exhibit of cyanides.

General Chemical Co. declared an extra dividend and a special dividend, amounting to 15 per cent all told, payable in stock to holders of the common.

Natural Products Refining Co., Jersey City, planned construction of a new $50,000 plant extension.

Grasselli Chemical Co. declared and extra cash dividend of 5 per cent and a special stock dividend of 10 per cent.



By Robert M. Curts

Technical Service Division, The New Jersey Zinc Co.

METALLIC zinc has extended its services into new fields as a result of much thoughtful and painstaking research work. This has been accomplished through the discovery of new zinc base alloys having properties quite different than those of the commercially pure metal.

We can divide these alloys into two general groups: (1) alloys for rolling (2) alloys for casting.

Rolled zinc has been used for many years in the construction of buildings. In domestic use we find it serving as a roofing—either the standing seam or batten type—and as a material for leaders and gutters. Industry has enjoyed the nonrusting qualities of corrugated sheet zinc for many years. But, unfortunately the ordinary commercial grades of corrugated sheet zinc do not possess the physical properties to be desired.

Alloy Broadens Zinc Market

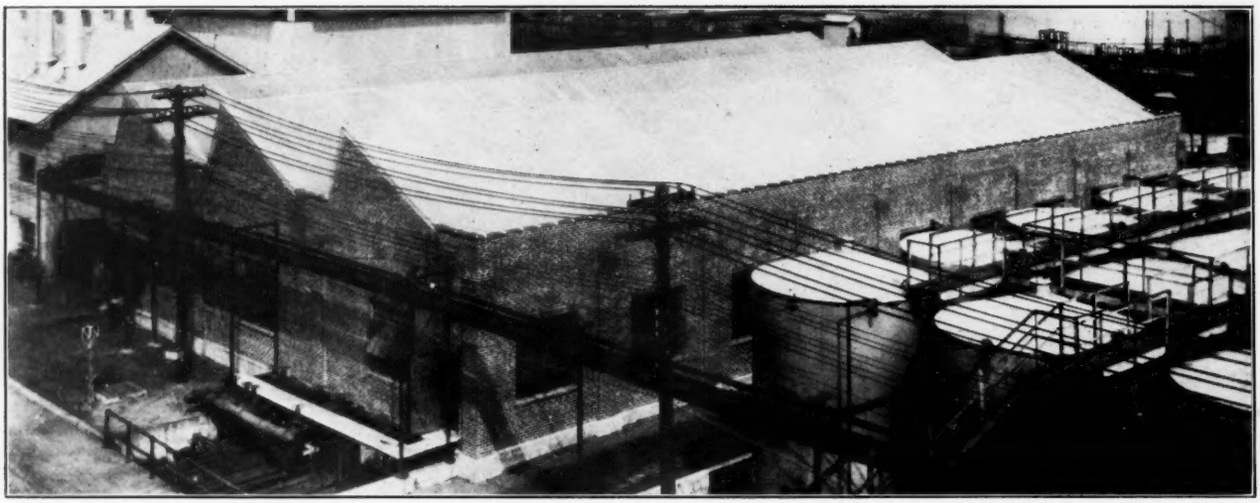
These ordinary grades of commercial zinc have a decided tendency to flow when subjected to any kind of a load. Although this flow or "permanent set", as it is sometimes called, is imperceptible from hour to hour, it becomes a very serious factor over long periods of time. Research investigators set out to discover a zinc base alloy which could be rolled economically and which would be less subject to permanent deformation under heavy loads of cement dust, snow, or even under the constant load of its own weight when suspended on purlins spaced relatively far apart. It was found that certain metallic ingredients could be added to commercial zinc causing the formation of a finely divided intermetallic compound and resulting in a distinctly greater resistance to plastic deformation. A suitable alloy was perfected and this alloy has served to create a broader market for zinc as a basic material.

Unquestionably the most important development which has taken place in the effort to establish uses for zinc is the discovery of greatly improved die-casting alloys. This applies primarily to "pressure" die castings, which are made by forcing molten metal into steel dies having cavities of the size and shape necessary to produce the desired object.

Stronger Alloy Developed

In the early days of die casting, alloys composed primarily of tin or lead were employed almost exclusively. The castings made of these alloys did not have much strength and their use was greatly restricted. Realizing that the economy which might be obtained through the use of the die-casting process was thus decidedly limited, efforts were made to find stronger alloys which would lend themselves readily to this high production method of making metal parts.

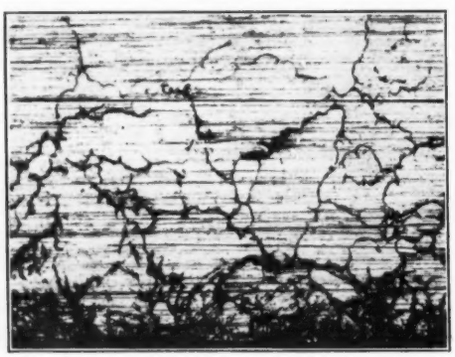
Zinc, though having a higher melting point than lead or tin, was tried and found to have possibilities. But unalloyed zinc was not suitable because it had a relatively low tensile strength (14,000 pounds per square inch) and because it showed a distinct tendency to dissolve the iron or steel parts of the die casting machine with which it came into contact. Additions of lead and tin were tried. Further experiments revealed that the addition of small amounts of aluminum and copper greatly improved the physical properties of the castings. Then, too, the aluminum tended to



Corrugated zinc alloy sheet roofing was used for this oil refinery building, allowing 54-inch spacing of purlins, as compared with 34-inch spacing, maximum for safety with ordinary corrugated zinc

reduce the dissolving effect of the alloy on the iron and steel with which it contacted.

This fact was ascertained by immersing weighed grey iron castings of equal surface area into molten zinc and zinc-aluminum alloys at a temperature of 500°C. After 30 hours these were removed, stripped



Magnified section of old type zinc base die casting deformed by oxidation

of any adhering zinc by dipping in hydrochloric acid, and reweighed. In the case of unalloyed zinc the loss in weight was 8.25 grams while zinc containing .030 per cent aluminum showed a loss of 2.35 grams and an alloy containing 5 per cent aluminum and 3 per cent copper showed a loss of only .02 grams.

One Alloy Combination

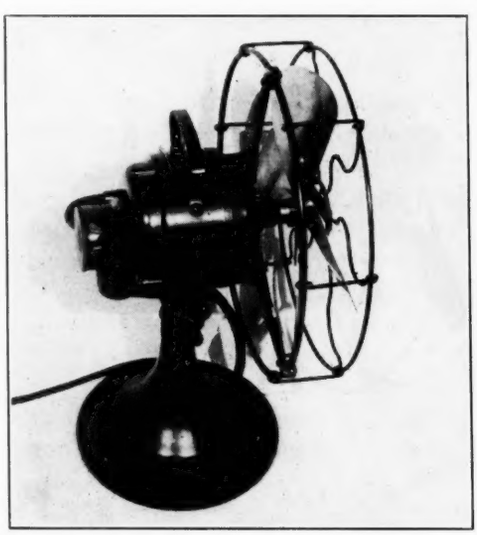
Of the many copper-aluminum-tin-zinc combinations which were tried, an alloy containing about 6 per cent tin, two-thirds per cent copper, 0.5 per cent aluminum proved the most popular survivor. This composition had certain distinct physical advantages over the lead and tin alloys. But still its physical properties fell short of those necessary for many metal parts which might be economically die cast. It had an initial tensile strength of only 20,500 pounds per square inch and an initial impact strength of only 6 foot-pounds per square inch.

Further investigations indicated that an alloy composed of 4 to 5 per cent aluminum, with 3 per cent copper and 92 to 93 per cent zinc had more desirable physical properties. With an initial tensile strength of 41,000-43,000 pounds per square inch and an initial resistance to fracture by impact blow of 75-100 foot pounds per square inch, it showed a marked advantage over the 6 per cent tin alloy previously discussed. With the introduction of this alloy many new and interesting fields were opened for zinc base die castings.

Aging of Alloys

For a time this alloy seemed to serve satisfactorily, but it was soon noted that after several years in service the castings made of it tended to become brittle and often underwent changes in dimensions which interfered with the proper functioning of the mechanisms of which they formed a part.

This prompted a rather detailed study of the copper-aluminum-zinc alloys which study has led to a better understanding of the causes of such "aging"



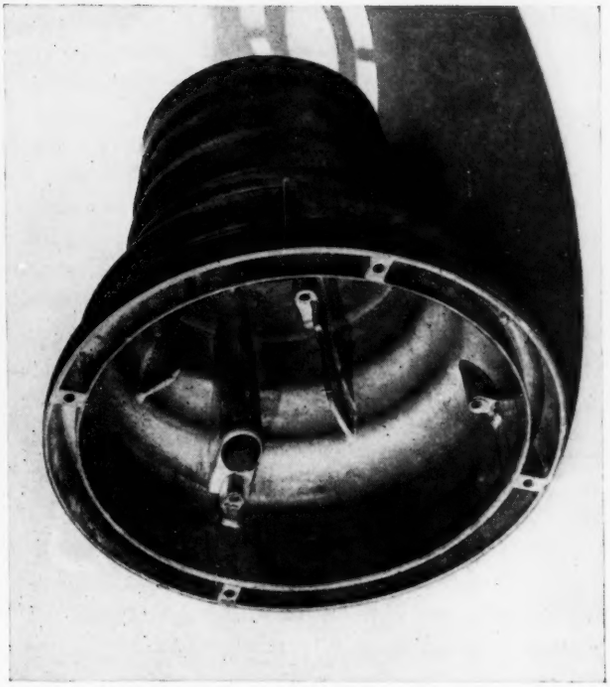
Electric fan motor housing die cast of aluminum, copper, magnesium and zinc alloy

phenomena. It was found that growth and loss of physical properties could be attributed to two causes—intercrystalline oxidation and internal phase changes, both of which are effected by atmospheric conditions.

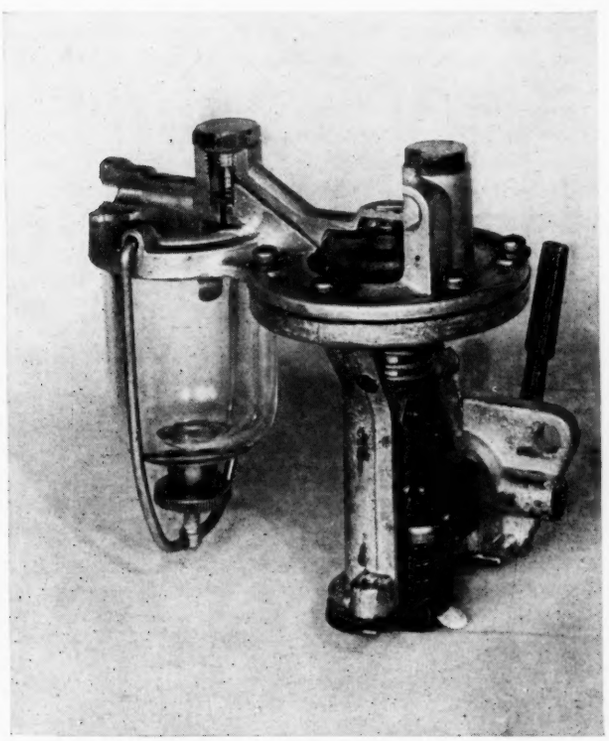
Internal Changes

Intercrystalline oxidation or corrosion, as this name implies, takes place between the grain or crystal boundaries (see illustration.) When a metal corrodes, the resulting products of oxidation are more voluminous than the original metal. While the chemical changes which take place in the corrosion process are very gradual they are very definite and are not restricted by the pressure or adhesion of the surrounding crystals. As the corrosion penetrates the casting the intergranular cementing material undergoes a physical and chemical change, at the same time losing its "cementing" power and thus weakening the structure of the alloy. The expansion in volume of this substance naturally causes growth of the casting. The causes and mechanisms of intercrystalline corrosion are well understood and alloys are now available which practically eliminate any of the old troubles which seemed inherent in the copper-aluminum-zinc base alloys.

The internal phase changes which gradually take place in this type of alloy have also been studied. Zinc-aluminum combinations exist in three different phases known as the alpha, beta and gamma. At a temperature of about 270°C. the beta phase—which is most prominent in the zinc base die casting—is transformed into a mixture of alpha and gamma. This transformation is accompanied by a decrease in volume. In pure zinc-aluminum alloys it is extremely rapid. Certain elements, copper, magnesium, and nickel, which may be added to these alloys, have a very pronounced effect on the rate of transformation and hence on the resulting properties of the alloys. The presence of 3 per cent of copper in an alloy containing 4 per cent of aluminum prevents the transformation from occurring immediately in the die cast alloys. The transformation, however, does occur slowly at room temperature, usually requiring several years to complete. The addition of small amounts of magnesium was found to retard this change and hence impart greater stability.



Electric motor housing die cast of a four-metal alloy, attaining accuracy of dimensions and good physical properties



Zinc base die castings give this fuel pump necessary strength, accuracy and durability

Effects of Various Metals

While small amounts of magnesium were found to retard intercrystalline oxidation and internal phase changes, small amounts of other metals such as lead, cadmium, and tin were found to have an accelerative effect and after much detailed study of the behavior of alloys purposely contaminated with these elements in varying amounts, definite allowable maximum limits were established.

Out of all this work the "4-3-.1" alloy was evolved, U. S. Patent 1,596,761. This alloy is composed of 4 per cent aluminum, 3 per cent copper, 0.1 per cent magnesium and 92.9 per cent high grade zinc. The use of high grade zinc assures that the alloy is uniformly within the maximum limits set for the combined lead and cadmium content which when present in quantities of over .06 per cent will adversely effect the aging characteristics of the alloy. Tin is not a normal impurity in high grade zinc and hence its ill effects are not encountered, unless the alloy has been

contaminated. The addition of 0.1 per cent magnesium incorporates the maximum beneficial effects which result in the addition of this element to the copper-aluminum-zinc alloys of this type.

With a tensile strength of 46,000-48,000 pounds per square inch, an initial impact strength of well over 100 foot pounds per square inch, freedom from growth through intercrystalline oxidation, and a decided retardation of internal phase changes, this alloy shows a vast improvement over the old 6 per cent tin alloy and the 4 per cent aluminum, 3 per cent copper alloy.

Uses in Engineering

It has been recognized as a satisfactory engineering material in many fields where, heretofore, zinc alloys were not considered acceptable. It is employed in the manufacture of automobile fuel pumps, carburetors, body hardware, radiator caps, lamp housings, and supports, steering wheel parts, et cetera. It is used in the manufacture of parts for washing machines, check writers, postage meters, vending machines, printing presses, cash registers, weighing machines, fare registers and pencil sharpeners. The radio industry employs it in the form of loud speaker housings, framework, drums, and cabinet hardware. A well-known hardware manufacturer has recently marketed a line of strong and sturdy die cast padlocks finished in dull chromium. The Kelvinator refrigerator hardware is also made of this alloy and is finished in either dull nickel or chrome. Many other items, too numerous to mention, are likewise being made of the 4-3-.1 alloy which is rapidly being accepted as the standard.

It is interesting to note the ever increasing use of high grade zinc in the form of die castings. The last ten years has evidenced the growth of a huge oak from a tiny acorn. The proportion of high grade zinc now consumed in the die casting industry places it in the front ranks of the list of consumers. The availability of fine high grade die casting alloys, resistant to normal atmospheric corrosion, nicely susceptible to attractive and durable electroplated finishes, and suitable for the high speed production of strong, accurate and rugged parts, has effected a very marked influence on the distribution of zinc as a chemical element into new and useful services where consumption runs high.

German chemical industry investigating committee finds foreign commercial policies disadvantageous to German chemical industry, Competition has increased and new outlets for products are limited. Size of the real chemical industry is estimated at 3,000 establishments with annual turnover of from 3,600,000,000 to 4,000,000,000 marks. Exports have decreased to Russia, England, the Balkans, the United States, and partly to China. Agriculture is the largest customer of the chemical industry, a place formerly held by the textile industry.

United States Bureau of Mines draws up regulations for transporting explosives in trucks, available in Information Circular 6330.

The Industry's Bookshelf

Income and Wages in the South by Clarence Heer, $1.00, 68 pages, published by University of No. Carolina, Chapel Hill, N. C.

A timely preliminary study of wages and income in the southern states. One of the University of North Carolina Social Study Series.

Principles of Property Insurance, by F. E. Wolfe, $3.00, 393 pages, published by Thomas Y. Crowell Co., N. Y.

A portrayal of the part played in modern social economy by risk-bearing organizations in the field of fire and other property insurance.

Watch Your Selling Dollar, by Archibald M. Crossley, $5.00, 361 pages, published by B. C. Forbes Publishing Co., N. Y.

A thorough consideration of modern requirements in marketing, illustrated with many colored charts.

Co-ordinated Motor-Rail-Steamship Transportation, by G. Lloyd Wilson, 222 pages, $3.50, published by D. Appleton & Company, New York.

A description of what has been done toward motor-rail-steamship co-ordination, the results and the future objectives and possibilities, by a recognized authority of the subject. Illustrated.

Digest of Workmen's Compensation Laws in the United States and Territories, with Annotations, by F. Robertson Jones, 529 pages, $8.00, published by Association of Casualty and Surety Executives, N. Y.

Eleventh edition of a comprehensive digest of workmen's compensation laws in the United States.

"X-Rays", by B. L. Worsnop and O. W. Richardson, 101 pages, $1.10, published by E. P. Dutton & Co., Inc., New York City.

An outline of X-rays, summarizing the early work, describing the properties, and giving an account of recent methods of investigation of diffraction, reflection and refraction.

An Introduction to the Study of Wave Mechanics, by Louis De Broglie, 249 pages, published by the E. P. Dutton & Co., Inc., N. Y., $4.25.

An authoritative and complete account of the new dynamical theory developed in logical sequence. The new principle of indeterminateness, together with recent experimental work on electronic diffraction, is amply discussed.

Wave-Mechanics, by Arnold Sommerfeld, 304 pages, published by E. P. Dutton & Co., N. Y., $6.25.

A survey of the recent important developments in the theory of the atom and atomic phenomena by a professor of theoretical physics at the University of Munich. The achievements of de Broglie, Heisenberg, Schrodinger and Dirac are clearly set forth.

A First Year Practical Chemistry, by Dennis Brook Briggs, 75 pages, published by J. M. Dent & Sons, Ltd., London and Toronto, $.50.

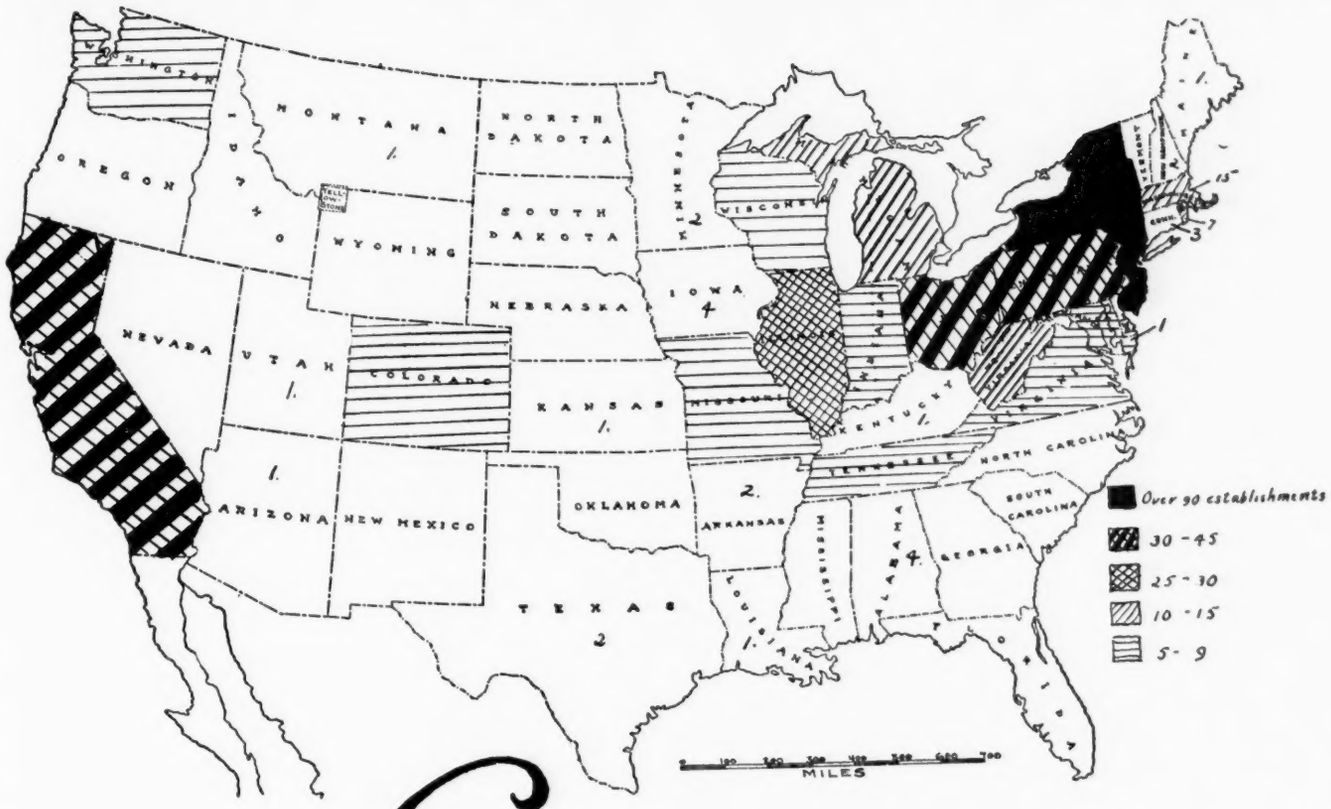
A suggested series of experiments for beginners in the study of chemistry, leading to an acquaintance with the various elements and their chemical reactions.

Is It Safe To Work ?, by Edison L. Bowers, 229 pages, $2.50-published by Houghton Mifflin Co., Boston, Mass.

A study of industrial accidents in the United States, compensation laws, rehabilitation systems and compensation in surance.

Chemistry for To-day, by McPherson, Henderson and Fowler, 588 pages, $1.80, published by Ginn & Co., N. Y.

Designed as a textbook for secondary schools, this volume is a very good introduction to the subject, amply illustrated, many interesting pictures and charts.



Chemical Geography

THE chemical industry is its own best customer. Such being the case, the merchandising of industrial chemicals closely parallels geographically the location of producing plants. Manufacturers of equipment for the chemical industry are likewise interested parties in the geographical situation of the nation's chemical manufacturing units.

Through statistics just compiled by the Industrial Goods Section of the Bureau of the Census, the distribution of plants has been accurately determined, both by states and by counties within the states. A glance at the accompanying map discloses at once the fact that the number of producing establishments is by an overwhelming majority limited to a relatively small number of states.

This simplifies the problem of sales coverage for the manufacturer of chemicals and chemical equipment. Indeed there are but seventeen states that have five or more chemical plants that fall within the definition of such plants as laid down by the Bureau of the Census. There are but two with ninety or more plants, New York and New Jersey; but three with thirty to forty-five, California, Ohio and Pennsylvania; one with twenty-five plants Illinois; and but three with eleven to fifteen, Massachusetts, Michigan and West Virginia. The six leading states with the number of establishments are as follows; New Jersey, 95; New York, 93; Pennsylvania, 44; Ohio, 33; California, 31; and Illinois, 25.

It must be borne in mind, however, that this position of importance is based solely on the number of plants rather than the total output. Each factory producing $5,000 or more receives the same rating as one whose total volume runs into hundreds of thousands of dollars annually. Nevertheless the geographical location by volume of output would closely overlap the distribution by number of establishments.

The Bureau of the Census in its classification "Chemicals" is divided into six groups; (1) acids, (2) nitrogen compounds, including ammonium and cyanogen compounds, (3) sodium compounds, (4) potassium compounds including potash from original sources, (5) general inorganic compounds, including alums and the various salts and compounds of metals, including antimony arsenic, copper, gold, iron, etc., rare earths, insecticide chemicals, etc., (6) general organic compounds, including the alkaloids and their

salts; coal tar crudes, intermediates and finished coal-tar products; synthetic photographic chemicals, flavors, essential oils, perfumes, narcotics, pharmaceuticals, etc.; plastics, rubber substitutes, including finished goods made by the establishments that make the plastic; formaldehyde; glycerine; carbon products; ether and solvents.

Industry Centered in Six States

Chemical America is located chiefly in the Middle Atlantic states, the Great Lakes region, the Blue Ridge section and the Pacific Coast. The extent to which the chemical industry is concentrated geographically is more readily apparent when the discovery is made that six states out of forty-eight, Massachusetts, New York, New Jersey, Pennsylvania, Ohio and West Virginia, contain two hundred and forty-nine establishments out of a total of only four hundred and fifty.

Geographical distribution of industrial chemical plants within the states follows very closely the distribution in the country as a whole, that is in each of the larger chemical producing states the establishments are segregated into a relatively small number of counties. For example, in New York State with ninety-three factories, only ten counties out of sixty-one have two or more plants while four, Erie, Kings, Niagara and Queens, have a total of fifty-nine factories or over 61 per cent of the total.

Distribution of Plants by Counties

The same condition prevails in other states. In New Jersey seven counties have two or more plants and within the territorial confines of these seven are located ninety-one of the ninety-five establishments, while in the County of Essex alone are situated nearly a third of the plants in the entire state. The four hundred and fifty factories in the country are located in but one hundred and fifty-six counties out of a total of 3,075. But fifty-four counties contain two or more establishments and within these are located three hundred and thirty-two plants. In the following table, these counties are shown divided into states and represent the bulk of chemical production, sales and prospective purchasers of industrial chemical equipment. A thorough study of the question of geographical location will aid in establishing sales quotas, eliminate wasted sales effort in barren sections and help in placing branch sales offices at vital points.

State	*County*	*Number of Plants*
Alabama	Jefferson	2
California	Alameda	7
	Contra Costa	2
	Inyo	2
	Los Angeles	7
	San Bernardino	3
	San Diego	2
	San Francisco	5
Colorado	Denver	3
Illinois	Lake	2
Iowa	Lee	3
Maryland	Baltimore City	6
Massachusetts	Essex	2
	Middlesex	7
	Suffolk	3
Michigan	Wayne	7
Missouri	St. Louis City	9
New Jersey	Bergen	9
	Essex	28
	Hudson	14
	Middlesex	16
	Passaic	7
	Somerset	2
	Union	15
New York	Albany	5
	Erie	7
	Kings	20
	New York	4
	Niagara	20
	Oneida	2
	Onondaga	4
	Queens	12
	Rensselaer	3
	Westchester	2
Ohio	Cuyahoga	8
	Hamilton	11
	Lake	2
	Summit	3
Pennsylvania	Allegheny	7
	Blair	2
	Delaware	4
	Lehigh	2
	Montgomery	2
	Philadelpdia	14
	Washington	3
	York	2
Rhode Island	Providence	7
Tennessee	Hamilton	3
Virginia	Norfolk	2
Washington	King	3
	Pierce	3
West Virginia	Kanawha	6
	Putnam	3
Wisconsin	Milwaukee	3
	Total....54	332

Crude gypsum mined during second quarter of 1930 amounted to 962,978 short tons, compared with 697,441 short tons during first quarter, according to reports from twenty-six operators to United States Bureau of Mines. Imports during same period, largely from Canada, totaled 253,960 tons. Sales of domestic and imported crude gypsum during second quarter amounted to 285,063 tons, against 169,076 tons during first three months. Calcined gypsum produced from domestic and imported rock amounted to 682,117 tons, against 571,973 gtons.

Japan, France, Java, Italy, Great Britain, Norway and the United States, principal iodine producing countries, apart from Chile produce from 20 to 25 per cent of total production, leaving rest to Chile, whose production was 994 tons in 1928 and 1,387 tons in 1929, the export figures for these years being 787 tons and 1,188 tons, respectively.

France imports chemical products worth $7,000,000 from United States in 1929. Total foreign trade of France in chemicals for 1929 was $246,815,000. Increase in imports of about 13 per cent was double that of exports. Naval stores was only major chemical to decline, offset by increase in perfumery industry. Year as a whole was profitable for French industry.

Economic Effects *of* Cut-throat Competition

By Edgar L. Heermance*

A stirring arraignment of present-day business practices every chemical executive is vitally concerned about.

A DISCUSSION of the economic effects of certain business practices which Trade Practice Rules have attempted to cover might well be started by sketching in a general background against which our picture may be drawn. We are passing through a period of business depression. It is common to attribute this depression to the collapse of the stock market. The more I study our present situation, the more I am inclined to doubt this analysis. We had a boom in securities, just as we had had a boom in Florida real estate; prices were forced up far beyond their real value. When the securities boom collapsed last fall, the effect on business was extremely serious. But what it chiefly did was to hasten a deflation movement in business that was bound to come sooner or later. My own method of study is to break down business as a whole into its component industries, select those which appear to be typical, and follow them through to see what is happening. For several years, whenever I studied an industry closely, I was likely to find the same general situation. They were doing a large volume of business, but they were not making any money. There were some outstanding exceptions, but what has been aptly termed profitless prosperity was the rule.

The underlying cause of this condition was overproduction. Certain economists say that there is no such thing as overproduction, but only underconsumption. What is referred to is the tendency in any industry to produce more than the market absorbs at the time, or can reasonably be expected to absorb. Largely as a result of the War, the capacity of our manufacturing plants was greatly expanded. While many companies merged or went out of business, this was more than balanced by the improvement in manufacturing processes. The surviving companies were able to turn out a larger volume with the same amount of machinery. Even before the break came, the overcapacity in many industries ran as high as 100 per cent. That is, half of the existing equipment would have been able to supply the demand. With a large plant capacity and a heavy general overhead, each manufacturer was under constant temptation to make more goods than he could sell.

Against this general background, let us trace the effect of some of the practices with which various conferences have been wrestling, in co-operation with the Federal Trade Commission.

Selling Below Cost

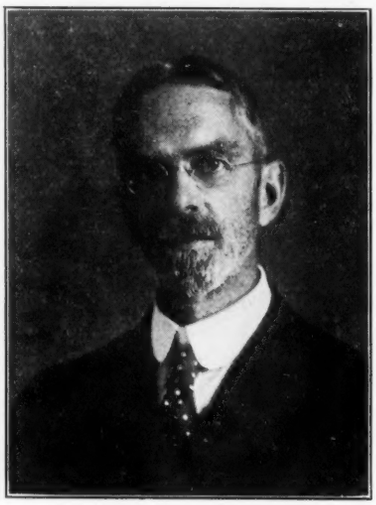
In the situation described, the most serious menace is the general tendency to cut prices. The orthodox economist assumes that prices are based on the law of supply and demand. In actual practice, they are more likely to be based on the price your competitor is charging. If he reduces his terms, you either meet them or go below them, in order to keep your share of the business. But your competitor is likely to hit back, with the same weapon. The only result is a steady and irreversible lowering of the price level, until no one is making a profit.

One reason manufacturers sell at too low a margin or actually below cost is that they do not know what their costs are. This ignorance is a factor in the price-cutting by smaller companies, which often starts a disastrous price war. Business sometimes gives to the outside observer the impression of a kind of Christmas game, where the object is to give your goods away as rapidly as possible. It may be the failure to take account of the various items which make up the manufacturer's overhead expense. The cost of doing business may be lumped, instead of being broken down to determine the share of each item in the expense of production and distribution; the loss on certain lines may be eating up the profit on other lines. Even where costs are known with some accuracy, there is a widespread notion that to take a certain amount of business below cost keeps your factory running and increases the volume of

*An address delivered at Congress of Industries

business over which your overhead must be spread. There is just enough truth in this to conceal the fallacy which lurks in the idea.

It is not to be denied that there are circumstances where a company might be justified in selling below cost, for a brief period. It must be done sometimes to close out stocks of seasonal or slow-moving goods. It may be necessary in the introduction of a new line of goods, with which the public are not familiar. It may be the alternative to closing your factory and disrupting your organization. It may seem the only way to retaliate on certain reckless price-cutters in the industry and teach them a needed lesson, though experience shows that price-cutting is seldom a remedy for price-cutting. But any selling below cost, however it may appear to be justified for the time being, tends toward a more or less permanent lowering of the price level, from which the offending firm suffers with the rest.



Edgar L. Heermance
Economist and writer on current business affairs

Dumping

is the marketing of surplus stock outside of one's regular territory at prices below those for the regular territory. A company, having already made a profit, can sell additional goods in this way and apparently be ahead on the transaction. Even if the goods are sold at cost, they are ahead on their overhead. There is also the advantage of production in larger volume. In fact, dumping is often advocated as a sound economic policy, particularly in foreign trade. Confining ourselves to domestic trade, each industry is a more or less closely related unit.

The economic effects of dumping can be seen only when we consider the industry as a whole. In the first place, dumping, like other forms of price-cutting, naturally invites retaliation. Suppose you dump in another company's territory, and they dump in your territory. The original profits on which dumping is predicated will disappear, and the business of both is completely demoralized. Even where there is no direct retaliation from a competitor, dealers who have been able to take advantage of dumped goods will pass on to other manufacturers the pressure for price reduction. In the average industry, the market is so interconnected that the company indulging in dumping as a deliberate policy merely helps to lower the price at which its goods may be sold, and so loses in the long run.

The forms of price discrimination all go back to the custom of secret discounts, which is a survival from the days when business was a huckster's dickering. The better class of retail trade changed many years ago to the one-price system. There is a fixed price, the same to all comers, and the customer does not expect to beat the clerk down. The system of open dealing has spread to many lines of production; buying is on quotations, and each purchaser of an equal quantity is given the same terms. In other industries, the regular price list means little. Certain customers are being given specially favorable discounts, or other forms of rebate, not granted to other customers of the same class. These prices are confidential, or so regarded by the manufacturer. In some cases the secret discount was made in the first instance to meet competition in a particular area. But once started, it is hard to get back to selling on your regular trade terms.

The evil of price discrimination lies not in the discrimination but in its arbitrary character. Failure to discriminate clearly between the various classes of customers may be equally serious. Let us take a concrete case. A few years ago, when a certain industry came to itself, after a long economic debauch, it discovered that the greatest obstacle to a stabilized price came from the wholesalers. And the reason for this was that the manufacturers, in their greed for business, had been selling not only to the distributors but to the distributors' retail business.

Direct selling is legitimate, provided the manufacturer realizes that in assuming the wholesaler's function he must charge enough more for his goods to pay for carrying on that function. He is obliged to keep a complete line of goods in stock, carry many small accounts, etc. In the case cited, which is rather typical, this distinction of function was almost entirely ignored. The wholesaler bought his goods from the manufacturer. In order to resell to the dealer, he acquired an average margin of probably 20 per cent. But when he went to the dealer with his goods, he found that the manufacturer had gotten in ahead of him. And the manufacturer's price to the dealer was so close to that given the distributor as to make resale impossible. In order to keep in business, the wholesaler was constantly hunting for bargains that would enable him to resell at a profit. By competing with himself in the channels of distribution, the manufacturer had forced the wholesaler to take this attitude, as a matter of self-preservation.

How far the exchange of current prices among competitors is legal, is by no means clear. It is done to some extent, and it might as well be done openly, since the terms a competitor makes will soon be learned through the salesmen's contact with customers. To let the rest of the trade know what you are charging has most of the advantages and none of the

disadvantages of a binding price agreement, which seldom is binding for any length of time.

In the publication of prices to prospective buyers, where the price lists mean what they say and are taken by the trade at their face value, they undoubtedly stabilize business. Trading is lifted to a higher level. It becomes a legitimate competition in prices, quality and service, rather than a form of haggling over each transaction. Orders can be sent by mail or telephone, with a great saving of time and economy of selling effort. In too many cases, however, the published price list is merely a base line from which the discounts to each customer are figured.

The question may be raised as to whether the public are not benefited by the lower prices brought about through dumping, price discrimination, and so on. The immediate benefit is obvious. They can buy cheap, at least for a time, which means they have more money to spend for other things. Consumption is spread over a larger volume.

Sacrifice of Quality for Price

In the long run this supposed benefit to the consumer is largely an illusion. When prices are lowered at the expense of the producer, as a result of cut-throat competition, there is likely to be considerable sacrifice of quality. If the consumer must buy two cheap articles instead of one good one, his purchasing power is not permanently increased. Follow the economic effects further. Where business is carried on at a loss, or at a margin of profit below the current rate of return for similar risks, it means a reduction of dividends, or lowered purchasing power on the part of those who have capital invested, who are part of the buying public. Such an industry is seldom able to pay an adequate wage, another loss of potential buying power. The frequent bankruptcies under these conditions widen the circle of loss still further. Goods may be cheap, but most of those who wish to buy have less money to buy with. Not only so, but the lowering of prices is likely to be temporary. In any industry, under cut-throat competition, the risk of doing business is increased, and it is difficult to keep the plants efficient. Which means that the cost of production and distribution is increased. Over a long term, say the life of the equipment, the time when replacement becomes necessary, the public must pay for this increased cost through higher prices. Capital has been used up and must be replaced if the needed goods are to be produced. From the standpoint of public policy, it would seem to be as important to protect business from predacious practices that hinder a safe profit, as it is to ensure free competition.

So much for the diagnosis. Now for the attempted method of treatment. Perhaps—the trade practice conference. How far, and under what conditions, trade practice rules have worked in practice, is not known.

Trade Practice Conferences fall into three general groups. In the first, the rules adopted, are counsels of perfection, which no one takes very seriously. The effect on current trade practice is nil. The rules are little more than a gesture. The industry may think it has accomplished something. But it might better have put its effort into education in cost finding, the standardization of products and contract forms, and the development of facilities for keeping in touch with the market.

In the second group, the industry has attempted to agree on a code of practice by which all the members shall be bound. In other words, the industry tries to legislate for itself. But the average industry is not in a position to legislate. It can only educate, which is rather a slow process. We have the same psychology here as in the subterranean attempts to control prices in violation of the Sherman Law.

Unanimous Action Needed

An agreement on practice, to be effective, must be a virtually unanimous agreement. And it must continue to be unanimous. Things go well for a time, until a few weak-kneed competitors, in their hunger for business, slip back into the old ways in violation of the rules that have been adopted. The agreement breaks down; and the last state of the industry is worse than the first, because they have seriously attempted to do something and failed.

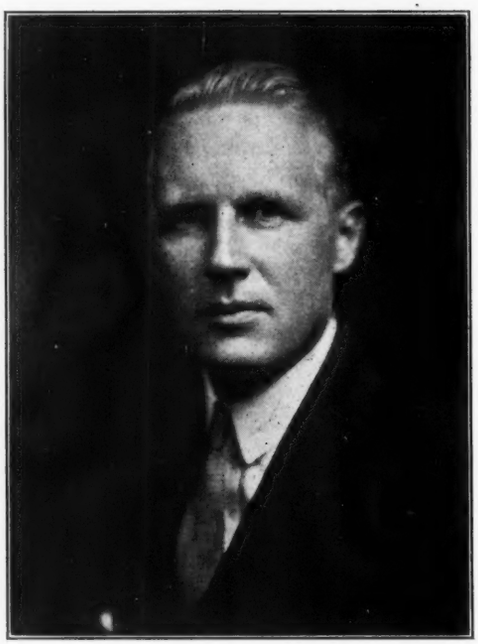
The third group is made up of those industries which, through a long process of self-education, have developed an efficient group organization, the habit of thinking in terms of the industry as a whole, and a fair degree of unanimity in sentiment and practice, at least among the leading competitors; every industry is surrounded by an irresponsible fringe. In a case like this, a trade practice conference, with effective machinery for continued education, is probably of great value. It works, because the ground has been properly prepared and the effort is followed through. Without discussing the possible efficacy of the Commission's police power, the semi-official character of trade practice rules gives them a standing in the industry which unofficial rules generally do not have. A trade practice conference is not a panacea. It is merely a valuable tool in the hands of those who know how to use it.

With large excess capacity and the constant tendency toward overproduction and all the evils that go in its train, the only salvation is intelligent self-restraint. A trade practice conference, like any other method of treatment, is of value if it helps to develop intelligent self-restraint all along the line; otherwise not. The principal companies in the industry must know their costs, budget their production according to the market, stick to their published terms, and have the courage to let the irresponsible price-cutter hang himself.

Copies of the complete address of Mr. Heermance may be obtained from the editorial office of Chemical Markets at a cost of ten cents a copy, covering the cost of printing and mailing.

Pioneers
Fine

A company that traces its ancestry back to 1668 is naturally a grand old oak of the chemical industry. This is the record of the modern House of Merck



George C. Merck, president, Merck Co., Inc.

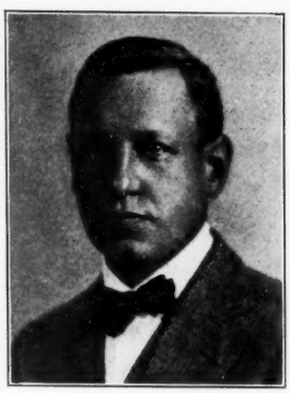
UNDOUBTEDLY future historians, when writing of the past decade, will speak of it as the "Merger Era" much in the same way that the first ten years of the twentieth century are often referred to as the "Anti-trust" days. Certainly the last ten years have witnessed an important series of consolidations and realignments of historic companies whose names in the chemical industry have been known and honored for a long time.

One of the most striking examples of consolidation is the present Merck & Co., Inc., more interesting than some other recent mergers because of the preeminence of the names Merck, Powers, Weightman, and Rosengarten in the field of fine, medicinal and industrial chemicals.

While this article is primarily written to record the story of the modern House of Merck, nevertheless some of the early history is essential to a proper understanding of its present policies, for from its founders are derived the fine old traditions that continue to occupy the minds and hearts of those in charge of the company's mamagenent.

Merck & Co.'s origin was in the ancient pharmacy in Darmstadt, Germany, called the "Pharmacy at the Sign of the Angel", which came into the possession of Friedrich Jacob Merck in 1668 and which has remained in unbroken possession of the Merck family for over two hundred and sixty years. This was the nucleus of the great chemical establishment now known as E. Merck, Darmstadt. Heinrich Emanuel Merck took over the pharmacy in 1816 and as the intimate friend and collaborator of the great chemist Liebig, started it on the road from pharmacy to factory.

The preparation of pure alkaloids was the main aim of the founder of the Merck factory and his



Frederic Rosengarten, chairman of the Board

Dr. Joseph Rosin, vice-president and chemical director

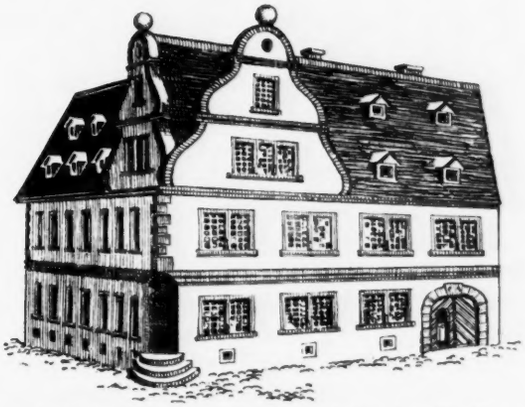
achievements include the original manufacture on a commercial scale of morphine in 1827, codeine in 1836 and cocaine in 1862.

In 1891 George Merck, a son of one of the heads of the Darmstadt concern, came to the United States to become associated with the American agency for the old house, and eventually to found the American house of Merck & Co. The small establishment in New York City soon proved inadequate and a small factory was opened in Rahway, New Jersey, where most of the products produced at the Darmstadt plant were duplicated.

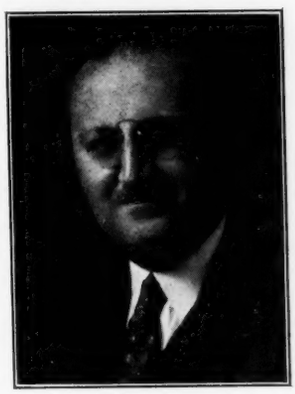
The second member of the triumvirate that has been welded together into what is now the modern house of Merck had its inception in the City of Philadelphia in the year 1818, and was formed by two chemists, Farr and Kunzi. Farr was devoting his attention to an investigation of the chinchona alkaloids, and with the discovery of quinine by the co-workers Pelletier and Caventou, the firm undertook the commercial preparation of this product

in Chemicals

This is one of a series of articles commemorating the first ten years of the present ownership of the magazine



The ancient pharmacy "At the Sign of the Angel", Darmstadt, acquired in 1668 and still belonging to the Merck family



James J. Kerrigan, vice-president in charge of sales and merchandising

George W. Perkins, executive vice-president

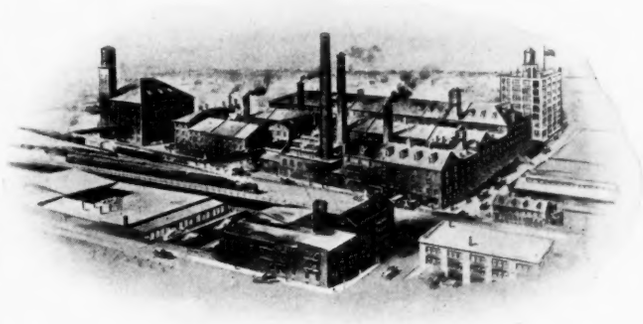
together with its regular line. In 1836 Kunzi retired from the firm and William Weightman and Thomas H. Powers, nephews of Farr, became active partners. With the death of Farr in 1857 the firm name was changed to Powers and Weightman and a new plant on the Schuykill was erected.

The third of the historic companies to become an integral part of the present Merck organization was the respected one of Rosengarten and Sons. In 1822 a partnership was formed by two Swiss chemists, Zeitler and Seitler. When a dispute arose between the partners, George D. Rosengarten, their accountant, agreed to buy out Seitler's interest and finally in 1854 obtained complete control and admitted two of his sons. Succeeding generations continued to control the company and in 1901 the business was incorporated under the name of Rosengarten and Sons, Inc.

Four years later the opportunity presented itself to purchase the Powers and Weightman Company from the daughter of William Weightman and the plant and businesses of these old and respected houses were merged under the corporate title of Powers-Weightman-Rosengarten Company. Substantial additions were made from time to time in both the plants and the products produced, and for over twenty years the P-W-R label was synonymous with perfection in the world of fine and medicinal chemicals.

Under the able leadership of George Merck, the company bearing his name continued to make rapid strides and numerous improvements and additions were effected at the Rahway plant. The list of Merck products in the drug and chemical field has been expanded until to-day over four thousand individual and separate items are manufactured. In 1925, the penalty of a super-active life descended upon George Merck, and failing health made it imperative that he lighten the burden somewhat. Fortunately his son, George W. Merck, who had served in various capacities in the organization, was available and he assumed the presidency, while George Merck became chairman of the board. Unfortunately, the far-sighted business judgment of George Merck was not spared for long and in the following year his death occurred at the age of fifty-nine. Competitors and customers alike have testified to his high ideals, energy, culture and modesty—those of a true gentleman of the old school.

The outstanding event of course in the history of the last ten years was the consolidation of the House

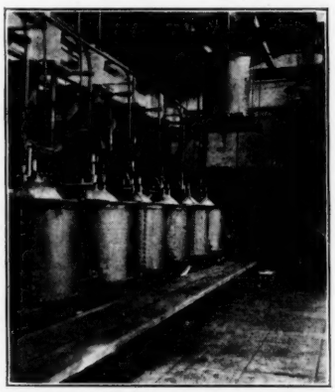


Offices and works of the Merck Co., at Philadelphia

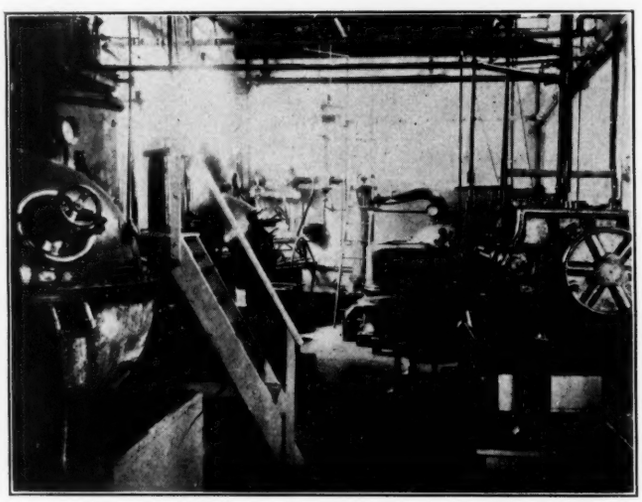
of Merck with that of Powers-Weightman-Rosengarten in July of 1927. Perceiving the tremendous benefits to be derived from combining the forces of two of the largest and outstanding national producers of fine, medicinal and industrial chemicals under one banner, George W. Merck and Frederic Rosengarten arranged a plan of consolidation that was received by the stockholders without a dissenting voice. This action brought together chemical establishments the founders of which were identified with the very beginning of modern industrial chemistry and whose products were known for their high standard of excellence wherever pharmacy, medicine and chemistry are practiced. George W. Merck, son of the founder, became president of the new company and Frederic Rosengarten chairman of the board of directors.

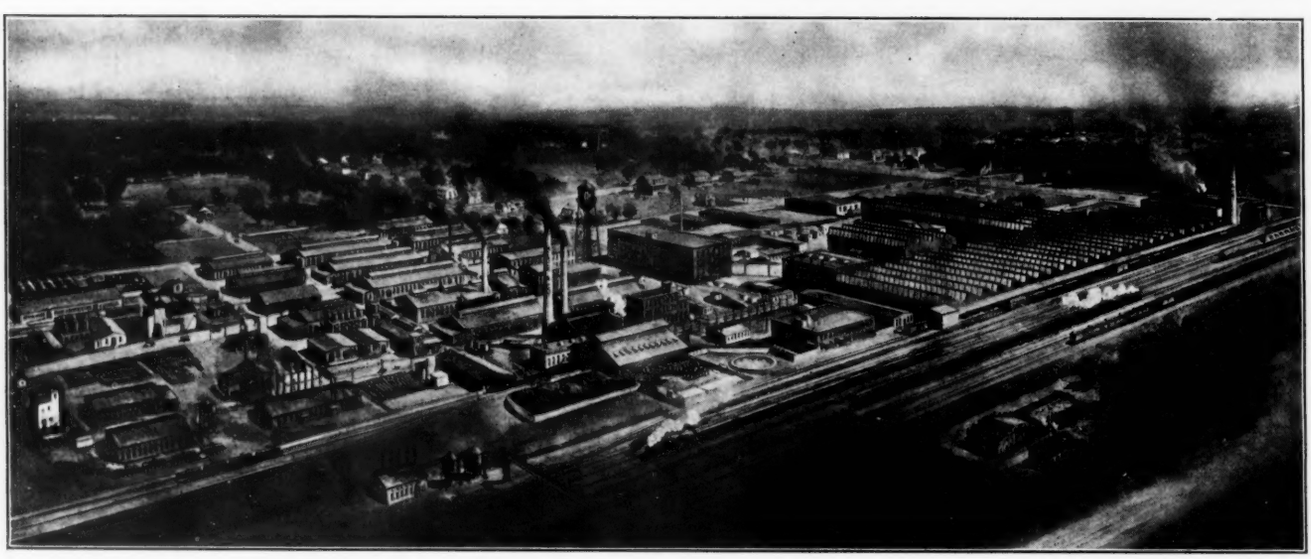
To-day the Merck property at Rahway comprises over 150 acres, the plant itself covering more than thirty-five acres. It is extremely difficult to believe as one is conducted through the modern Merck plant that the company is one of the oldest in the chemical industry. The finely appointed and efficiently equipped office building, the research laboratories of the very latest design, and the plant itself are models in layout and equipment in the chemical industry. The Merck organization, thoroughly imbued with the progressive spirit of George W. Merck and Frederic Rosengarten, and under their personal leadership, has successfully applied mass production methods to the manufacture of highly technical products without sacrificing for a moment the high degree of purity and uniformity that is so characteristic of Merck chemicals. Indeed, where the spirit of research is so thoroughly established and fostered, it is not strange that many improvements in methods and products are constantly being made. It is not until one becomes acquainted with the personnel of the company, whether it be the chairman of the board, the president, the research staff or the plant operating force, that one becomes aware that the House of Merck is an institution with years of tradition. Each and everyone retains and jealously guards the old spirit of insistence on perfection that is the heritage of the pioneers and yet these traditions to-day merely serve to further incite the desire for the complete adoption of new and progressive methods. The spirit of the old and the new has been admirably blended in the Merck organization.

Here a stage in the manufacture of an important medicinal organic chemical is carried on



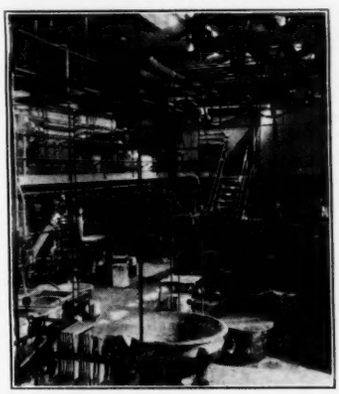
A corner of an alkaloid manufacturing laboratory



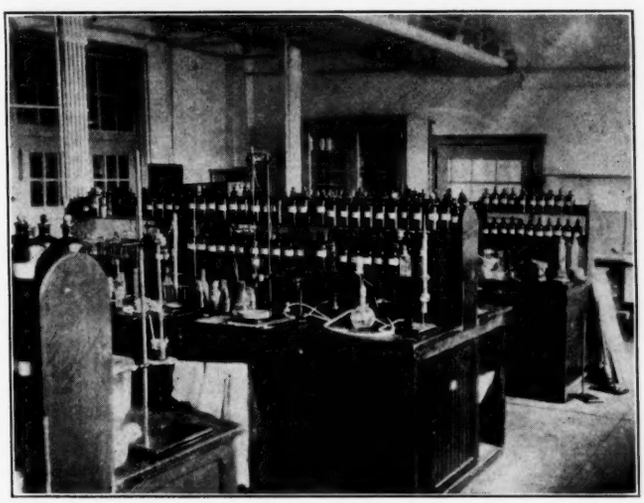


Main offices and works, Rahway, N. J.

Merck & Co.'s phenomenal progress is directly the result of the outstanding character and ability of its leaders. George W. Merck and Frederic Rosengarten, of course, have been connected with the chemical industry literally from birth. While George W. Perkins the present executive vice-president is comparatively new to the industry, he has inherited the keen business judgment of his father and is a splendid example of the modern interest of finance in chemistry. James J. Kerrigan, vice-president in charge of sales, dates his connection both with the chemical field and Merck & Co to his knickerbocker days in the old offices on Park Place. Through sheer ability he has risen to his present position of importance in the organization. A very fortunate result of the merger of the two companies was the acquisition of Dr. Joseph Rosin, vice-president and chemical director. As chief chemist of P-W-R his contributions in the field of fine and medicinal chemicals were of greatest importance and as the directing force of the enlarged research division he has carefully laid the foundation that will undoubtedly expand still further the enviable reputation of the house of Merck.



Where wheels whir in the production of intermediate or complex, synthetic organic chemicals

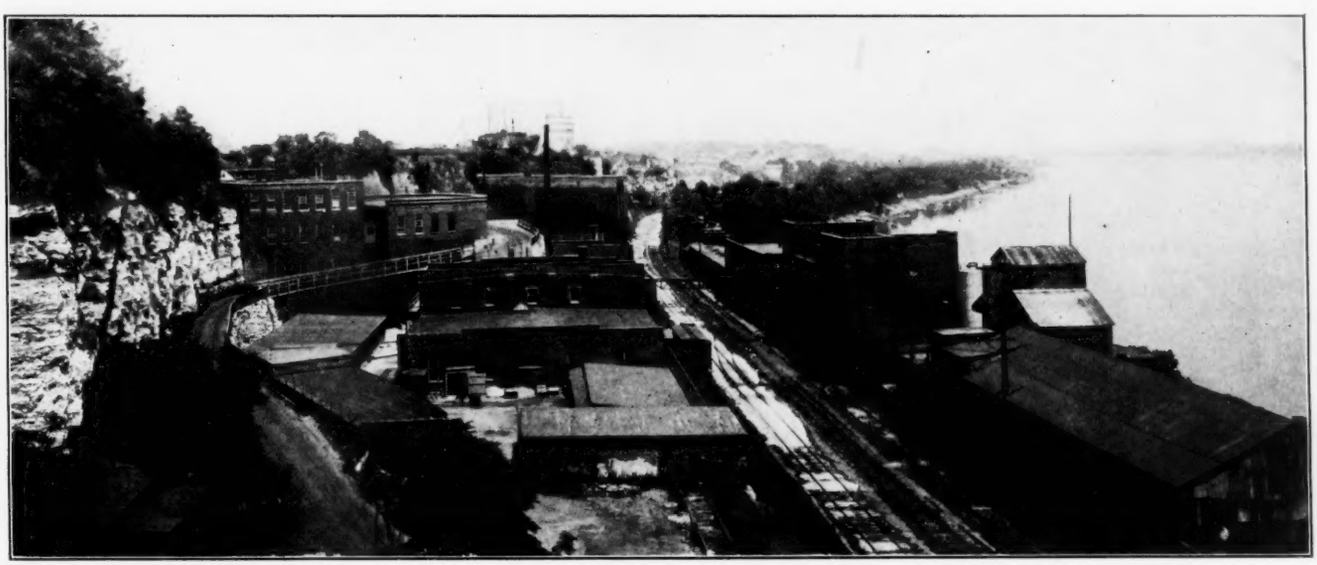


A section of the research laboratory

Too short a period of time has elapsed since the merger of interests to permit all the practical benefits which were contemplated to become effective. Much indeed has been accomplished in the consolidation, improvement and enlargement of the facilities required for manufacturing, controlling, storing and shipping the multitudinous number of chemicals that the company supplies to the drug and chemical trades.

Substantial economies have been effected in the combining of offices, warehouses and factories. The main offices and research laboratories have been centered at the Rahway plant as well as the manufacture of the fine, medicinal and reagent chemicals, while the Philadelphia plant is now primarily devoted to the manufacture of chemicals of an industrial nature.

A very important result of the amalgamation of interests has been the enlargement of the company's research facilities. The last decade has seen important developments in medicine based on a greater recognition of the specific properties of both new and already known drugs and chemicals. Research, in the opinion of George W. Merck, is of the greatest



St. Louis plant of Merck & Co.

importance in maintaining and increasing the prestige of the company, and appropriations for this purpose are certain to receive favorable action. Because of this policy, Merck & Co. have not only kept abreast of the times and with new movements in the medical sciences but has been very successful in contributing several new contributions to the general knowledge. At the present moment plans are being formulated which will practically double the research facilities of the company.

Canadian Branch Taken Over

Early in 1929 the former Canadian branch of Merck & Co. in Montreal was taken over by Merck & Co., Ltd., and the Canadian factory of the National Drug and Chemical Company of Canada, Ltd., was purchased. Many of the Merck standard chemicals will be reproduced at this plant.

An important field of endeavor of the company is the publication of several valuable technical books covering the medical and chemical fields. In 1923 the fifth edition of Merck's Manual of the Materia and Therapeutics was published. It has been said

MERCK & CO.

Chemicals

St. Louis NEW YORK Montreal

Works at Rahway, N. J.

Merck & Co. advertisement appearing in DRUG & CHEMICAL MARKETS *ten years ago*

of this book that it has been a liberal education to physicians in prescription writing and has contributed its share to a revival of the subject. Within two years the edition was exhausted and a second printing was required and at the moment a new edition with distinctive new features is now in editorial preparation. In January of this year the long-awaited fourth edition of Merck's index was completed and is one of the most complete encyclopedias of Drugs and Chemicals published.

Noteworthy Contributions to Chemicals

The contributions of Merck & Co. and Powers-Weightman-Rosengarten to the fields of fine chemicals, medicinals and industrial chemicals were large and noteworthy. The amalgamation of interests has greatly enhanced this value. The combination was indeed a most logical one as their manufacturing activities were largely complementary to each other. With duplication of effort eliminated, with greater financial, technical and manufacturing resources to be drawn upon under simplified and progressive direction still more important contributions to these fields will be the inevitable result.

Zinc Production for First Seven Months

Zinc production of countries reporting output to American Bureau of Metal Statistics is given below in short tons. Output is not allocated to country of origin or ore except in case of United States and Mexico.

	May	*June*	*July*	*August*	*Jan.-August*
United States	44,578	43,473	40,038	41,029	358,375
Mexico	2,629	2,669	3,096	2,938	20,198
Canada	9,204	9,204	8,978	9,749	75,939
Belgium	‡....	‡....	‡....	‡....	‡....
France	9,223	8,154	8,096	7,766	69,614
Germany	*10,060	9,668	9,413	9,255	77,508
Great Britain	4,934	4,691	5,008	4,532	38,428
Italy	1,516	1,552	1,857	1,688	9,774
Netherlands	‡....	‡....	‡....	‡....	‡....
Poland	‡....	‡....	‡....	‡....	‡....
Spain	973	957	984	1,005	7,805
Australia	5,312	5,107	5,243	5,243	41,329
Rhodesia	1,831	1,828	1,758	1,680	14,065
Elsewhere†	8,100	8,000	8,300	8,300	65,200
Totals as reported and estimated	98,360	96,303	92,771	93,185	778,235

*Includes zinc dust, which amounts to about 300 tons a month. †Estimated ‡Not reported.

World's total in 1929 was 1,621,222 short tons, an average of 135,102 tons a month, out of which Belgium, Netherlands and Poland accounted for 434,982 tons, average of 36,249 tons a month. Since 1929 the monthly production of those countries has not been reported.

German Superphosphate Prices Higher

Superphosphate prices in Germany, effective August 11, 1930, and fixed by the newly reorganized "Deutsche Superphosphate-industrie G. M. B. H." (Berlin), are as follows:

100 Kilos Unpacked Delivered in Germany

	Aug. 1	*Aug. 11*
	(*Marks*)	
East Germany: except East Prussia and Silesia	6.30	6.48
East Prussia	6.37	6.55
Silesia I	6.62	6.80
Silesia II	6.71	6.89
Silesia III	6.84	7.02
West Germany:		
Hildesheim freight base	5.81	5.99
Cologne freight base	5.54	5.72
Mainz freight base	5.76	5.94

Less Acetate of Lime Produced

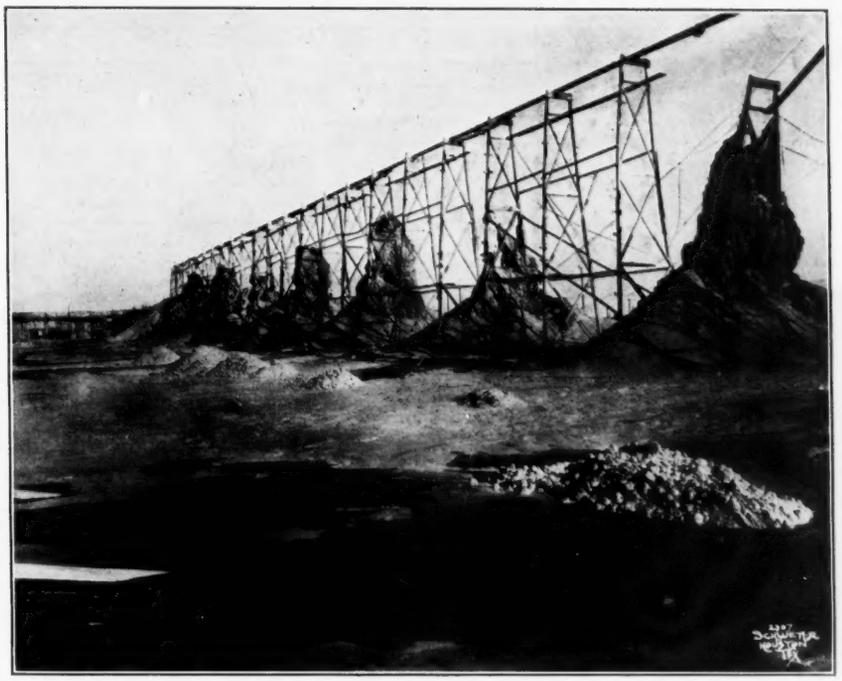
Acetate of lime production in United States during August amounts to 4,660,045 pounds, compared with 3,991,753 pounds during July, and with 11,024,597 pounds during August, 1929. For eight months 65,539,804 pounds, compared with 94,184,074 pounds during the corresponding months of 1929, and with 88,385,330 pounds during the same period two years ago. Shipments during August totaled 3,503,415 pounds, compared with 3,780,515 pounds during July, and with 10,861,526 pounds during August last year. For the eight months, 43,110,014 pounds, as against 93,384,008 pounds during the same time last year, and 96,789,970 pounds during the same eight months of 1928.

Imports of acetate of lime amounting to 13,824,814 pounds, valued at $569,022, during the first half of 1930, represent approximately 50% increase both in quantity and value over figures (9,167,657 pounds, invoiced at $382,022) for the same period of 1929. No acetic acid was imported during first half of this year, and only 16,716 gallons of methanol, valued at $16,200 (in January, from Germany) were brought abroad during this period.

	First Quarter Pounds	*Second Quarter Pounds*	*First half, 1930 Pounds*
Canada	2,909,187	2,924,792	5,833,979
Yugoslavia and Albania	2,268,345	1,338,688	3,607,033
Germany	1,249,744	1,870,713	3,120,457
Belgium	539,392	185,690	725, 82
British India	462,992	.....	462,992
United Kingdom	76,271	.....	76,271
Total	7,505,931	6,319,883	13,825,814

Statistics for 1930 in this item are preliminary and subject to revision; first half of 1930 is through June 17 only.

No Sulfur Shortage



Pyramids of sulfur resulting from brine evaporation in hot water mining

Sulfur to-day is a particularly bright spot on the chemical horizon. The whys and wherefores responsible for this position are explained fully in this article.

ANALYSIS of the financial reports of companies producing industrial chemicals disclosed the fact that the sulfur group has made the most satisfactory showing in the present period of curtailed activities and lowered earnings. Actually the net incomes of the two largest producers, Texas Gulf and Freeport Texas, show but slight changes in 1930 over corresponding periods in 1929.

Texas Gulf Sulphur has a P/L statement that for the first nine months of the current year shows a net income of $10,793,799 against $11,480,489 in the same period a year ago. Freeport Texas Sulphur Co. shows a net income of $6,829,269 for the six months ending May 31, 1930, compared with $6,813,792 in 1929.

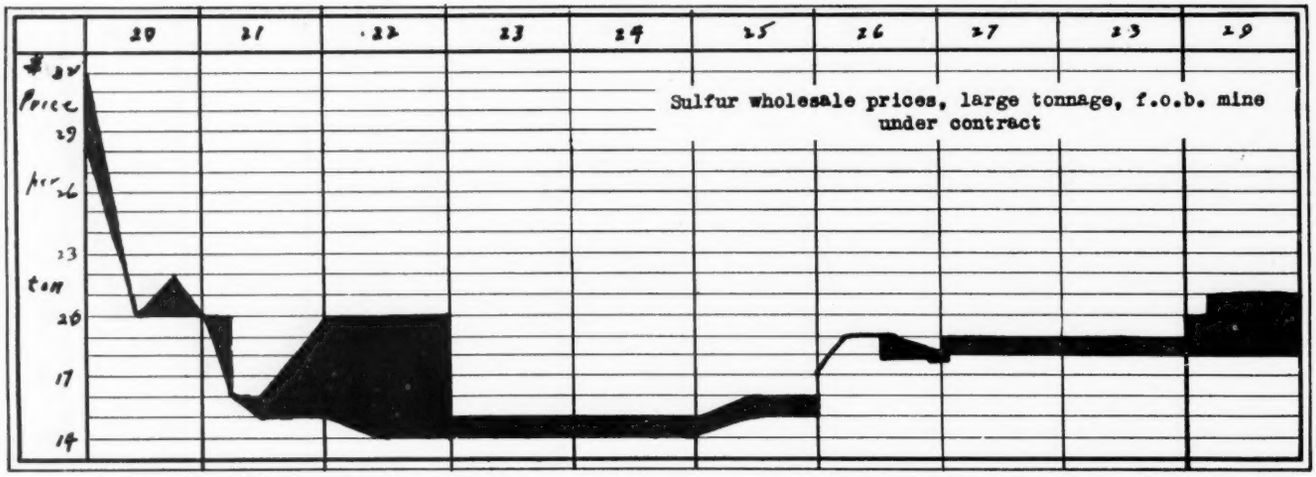
This strength in the face of pronounced manufacturing recession is attributable to three reasons: first, the introduction of several new and important uses for sulfur; second, the present wide diversity of uses, and finally, the strengthening of the already commanding position of American producers in the international field.

Indicative of the expansion in the use of sulfur is a comparison of the figures for world consumption for the years 1922, 1,500,000 tons; 1925, 2,250,000 tons; and 1929, 2,800,000 tons. Thus in the short space of seven years the total tonnage of sulfur has increased very close to a hundred-fold.

The older, well established chemical processes involving the utilization of sulfur, such as acid manufacture, rubber vulcanization, and paper-pulp bleaching have registered impressive year-to-year tonnage gains in the last fifteen years, and it is still in these industries that the bulk of production is consumed. It is in the newer fields, such as plastics, rayon, moving-picture films, petroleum, refrigeration and solvents, however, where the greatest gains have been made and which hold so much in the way of promise for the future.

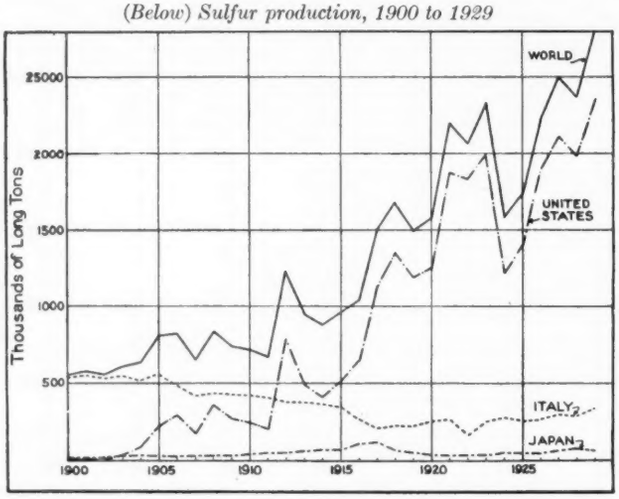
Obviously, with the rate of consumption increasing as rapidly as these statistics indicate, some thought should be given to the extent of present available sources, their probable reserves, and possible new sources of supply when the present ones are depleted. Brimstone and all the various chemicals derived from it, is the most widely used chemical group in the world. Therefore, the question of adequate supplies is of major importance. The principal sources of sulfur are the United States, Italy and Japan, named in the order of

Sulfur wells which pump brine and relay it to cooling vats



(Above) Range in wholesale price of sulfur

(Below) Sulfur production, 1900 to 1929



their importance. But sulfur is widely distributed throughout the world, and several additional countries are producers on a very minor scale. These lesser sources are Chile, Spain, United Kingdom, Austria, China, Mexico and Russia.

Everyone even slightly acquainted with the history of sulfur knows that the world was practically dependent upon Sicilian production for many years. Prior to 1903, 95 per cent of the sulfur consumed originated from Sicily. Since then, however, due to several conditions both political and economic, the world source has changed. In 1929, 80 per cent of the world's brimstone was contributed from American mines.

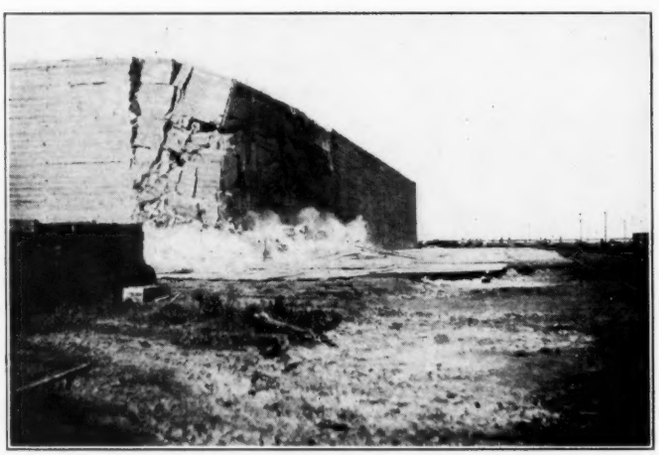
Sulfur on Gulf Coast

The sulfur mines in the United States are located along the Gulf coast in the southern section of Texas and mining operations are centered in the hands of three principal producers all employing the Frasch system or modifications of it. The introduction of this method of hot water mining in 1891 so reduced costs that foreign producers were seriously handicapped and American predominance of this important market was definitely assured.

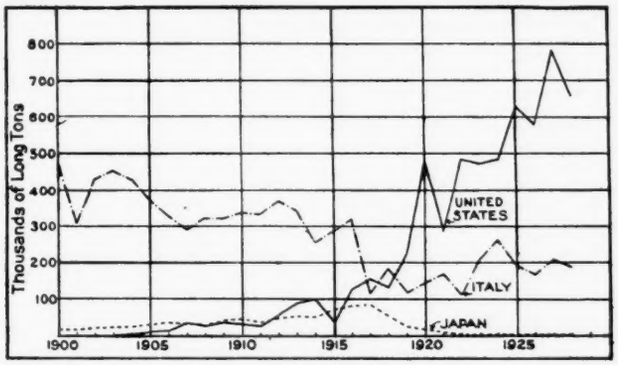
The largest single producing property is in the hands of the Texas Gulf Sulphur Co. and the daily output of the Big Hill Dome is upwards of 3,000 tons. Freeport Sulphur is at present mining in two sectors known respectively as Bryan Mound and Hoskins Mound. Two smaller operations commenced in 1929, the Duval Texas Co. at the Palangana Dome and the Union Sulphur Co. at Boling Dome.

While the presence of sulfur was definitely known in the Big Hill Dome section as early as 1901, it was not until eight years later that actual drillings of commercial importance were made. In 1918 Texas Gulf acquired the property and under the stimulus of war demands completed the plant. By the end of 1921 over a million tons had been brought to the surface, and at the end of last year some eight million tons had been mined. With estimates of the total resources varying between eight and eleven million tons, it would appear that exhaustion of this deposit is close at hand. Nevertheless, operations seem to belie this statement and present estimates may be underrating the productive capacity of the dome.

In 1927 Freeport Texas acquired the Boling Dome sector and have enlarged plant facilities this year so that production of 600,000 to 700,000 tons a year has been reached. The reserves are tremendous, being possibly as large as the Big Hill Dome. In addition to the Boling Dome property, Freeport



Blasting in a sulfur vat to break up solidified product for easier handling



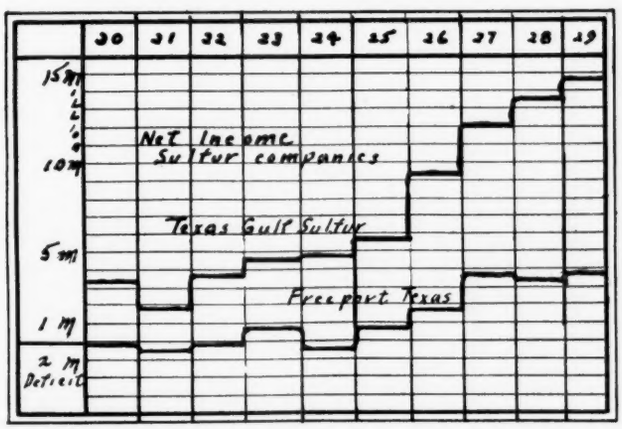
Exports of sulfur from main exporting companies, 1900 to 1928

Texas or its predecessor the Freeport Sulphur Company, has been mining the Bryan Height Salt Dome and to date has withdrawn about 4,000,000 tons. A few years ago estimates of the property indicated a total of 17,000,000 tons; but more recent indications point to a remaining reserve of but 1,250,000 tons. Hoskins Dome, the third of the Freeport Texas Group, has had an average yearly output of 300,000 tons for the last eight years, a total of 2,400,000 tons. It is known as a reasonable certainty that its reserves are nearly as large as Big Hill, so that approximately 6,000,000 to 7,000,000 tons are still below the surface. In addition to these reserves The Texas Gulf Sulphur controls at Boling Dome a tonnage potentially larger than the original estimates of its Big Hill properties.

Large Available Tonnage

Palangana Dome is still in the experimental stage and production at present is on a limited scale. The last of the present companies now operating is the Union Sulphur, which is also located in the new Boling Dome field. Its operations are still smaller than the older operators in this Texas field.

Estimates of the total available tonnage of sulfur existing in various parts of the world are placed at 56,000,000 to 121,000,000 tons. It is self-evident that the world's supply of sulfur is adequate for a long time. The potential tonnage of Italy is estimated between 25,500,000 and 84,000,000 tons, while the Texas properties are thought to still contain upwards of 40,000,000 tons without including any of the more recent discoveries. It is not without the pale of possibility that entirely new fields will be discovered within the United States. Indeed one has already been reported in Culberson County, Texas.



Comparative incomes of the two largest sulfur producers

It may be said then with a fair degree of certainty that the present predominant position of American producers is assured for several generations. Unquestionably the greater portion of the world's consumption will be drawn from this country as long as our reserves last. Producing costs of our companies are much lower than those of the Italians. Practically all of the important known deposits in other parts of the world require the liberation of sulfur from metallurgical contributions.

It is not particularly difficult to estimate present resources and to a lesser degree to estimate the explored but inoperative fields. Where the real difficulty is encountered is in making a fair estimate of future consumption.

World Production of Sulfur 1900-1929
(In long tons)

	United States	*Italy 1/*	*Japan 2/*	*Chile*	*Spain*	*Total 3/*
1900	3,147	535,525	14,211	1,661	738	555,282
1901	6,867	554,203	16,287	2,037	600	597,994
1902	7,446	530,913	17,998	2,594	443	559,394
1903	35,097	545,005	22,513	3,504	1,653	607,772
1904	85,000	519,231	25,165	3,538	595	633,592
1905	220,000	559,942	24,264	3,417	600	808,223
1906	295,123	491,920	27,885	4,525	689	820,142
1907	188,878	420,229	32,803	2,859	3,555	648,324
1908	364,444	438,279	32,891	2,662	2,941	841,217
1909	273,983	428,189	36,317	4,437	3,375	746,301
1910	247,060	423,563	43,154	3,762	3,773	721,312
1911	205,066	407,620	49,481	4,380	6,476	673,023
1912	787,735	383,300	53,692	4,361	4,519	1,233,607
1913	491,080	380,209	58,509	6,542	7,381	943,721
1914	417,690	371,875	72,944	9,850	7,933	880,292
1915	520,582	352,451	71,066	9,615	9,517	963,231
1916	649,683	265,120	104,707	14,644	10,461	1,044,615
1917	1,134,412	208,501	116,224	17,787	12,681	1,489,605
1918	1,353,525	230,596	63,748	19,248	12,537	1,679,654
1919	1,190,575	222,555	49,831	18,611	11,263	1,492,835
1920	1,255,249	259,440	38,975	13,129	12,200	1,578,993
1921	1,879,150	269,547	36,013	9,517	5,170	2,199,397
1922	1,830,942	164,696	34,095	12,057	13,028	2,054,818
1923	2,036,097	252,293	36,825	11,200	8,382	2,344,797
1924	1,220,561	290,241	46,133	9,611	9,388	1,575,934
1925	1,409,262	259,428	46,962	8,929	7,859	1,732,440
1926	1,890,077	267,107	47,020	8,787	9,351	2,222,292
1927	2,111,618	300,888	60,371	12,303	10,065	2,495,245
1928	1,981,873	291,430	68,956	15,423	10,199	2,367,881
1929	2,362,389	4/323,000	58,718	4/16,000	4/10,000	2,770,107

1/ Greggio sulphur.
2/ Does not include sulphur ore.
3/ Does not include scattered production throughout the world which is probably well under 5 per cent of total.
4/ Estimate.

The figures for Italy shown in Table 1 and Figure 4 are not directly comparable with the United States and other countries. The commercial sulphur of Sicily contains from 2 to 11 per cent of impurities and is known as "greggio" which is graded as "best unmixed seconds," "best unmixed thirds" and "current thirds."

More than four times as much sulfur was produced and consumed in 1928 as in 1900. Production and consumption doubled in the eight years between 1922 and 1929. With such spectacular growth in use, it becomes quite impossible to gauge accurately what consumption will be ten years hence. Between the years 1927 and 1929 the tonnage of sulfur employed in this country for manufacturing heavy chemicals (principally sulfuric acid) jumped from 490,000 tons to 560,000 tons, an increase of 13 per cent; that consumed in the fertilizer and insecticide field from 300,000 tons to 415,000 tons, a growth of 28 per cent; and for miscellaneous chemical uses from 118,000 tons to 136,000 tons, 14 per cent. Each successive year will most certainly witness greater consumption in such industries as rayon, rubber, solvents, and re-

frigeration, and new uses are being discovered with startling rapidity.

Sulfuric prices have remained well stabilized for the last three years, sizable contracts being based on $18 to $21 a ton, f. o. b. mines, Texas. Previous to 1927, sulfur prices were in a rather competitive position. Pegged at $22 a ton by the War Industries Board up to January 1, 1919, with the removal of this restriction came demoralization. American producers came into sharp conflict with the Italian suppliers and in the intense struggle for supremacy and world domination, prices went as low as $14 a ton. Subsequently tacit arrangements were made between Union Sulphur, then the leading American producer, and the Italian producers as to prices in foreign countries and the present leading producers in this country have carried along on a somewhat similar basis so that the last few years have seen comparative accord as to prices.

Industries and products in which sulphur is employed

Alcohol	Fungicide	Paper bleaching
Alum	Glass	Petroleum products
Aniline	Glue	Photography
Artificial fertilizers	Glycerin	Plastics
Artificial silk	Illuminant	Poison
Beltings	Inorganic or organic acids	Refrigerating reagent
Binders	Insecticides	Rodent exterminator
Bleaching agent	Laboratory reagent	Rubber hose, tires, and other rubber goods
Celluloid	Leather	Shoe polish
Cements	Liquid fuel	Soap
Chemicals	Livestock food	Soda
Dyes	Lubricants	Solvent
Ebonite	Matches	Steel pickling and galvanizing
Elastics	Medicine	Storage batteries
Explosives	Metallurgy	Sugar
Fabrics	Motor fuels	Tanning
Fire extinguisher	Moving-picture films	Textiles
Fireworks	Paints	Water purification
Food Preservatives	Paper	
Fumigant		

Sodium nitrate importations, largely from Chile, dropped to 9,083 tons in August, as against 51,684 tons in August, 1929, and 75,318 tons the year before, according to the National Fertilizer Association. Drop is due to world nitrogen negotiations, absence of permanent f. a. s. Chile price schedule and to general depression. Imports for period from December to August were 9 per cent less than for year ago and 16.5 per cent less than for two years ago. Calcium cyanamid imports for August were smaller than for August for the last two years, but total imports for period from December to August increased 6.4 per cent over similar period a year ago and 37.6 per cent over two years ago.

European zinc producers ask zinc interests in America to cut exports to Europe 15 per cent in order to strengthen prices. The European producers, who decided on a 5 to 10 per cent reduction in July are now faced by an additional 30 per cent reduction, provided American producers agree to the requested cut. Fate of the proposed international cartel depends on the American reply as European producers say they cannot join unless Americans agree to co-operate.

World Engineering Congress (Oct.-Nov. 1929) proceedings publication includes about 550 pages devoted to chemical industry. Prospectuses are available at the offices of the American National Committee, World Power Conference, Chrysler Building, New York.

American Chemical Society Elects Chairmen

American Chemical Society elects following chairmen of professional divisions: Biological Chemistry, Miss Icie G. Macy, Merrill-Palmer School, Detroit; Cellulose Chemistry, Fredrich Olsen, Ordnance Department, U. S. Army, Picatinny Arsenal, Dover, N. J.; Colloid Chemistry, Prof. R. A. Gortner, University of Minnesota; Dye Chemistry, H. W. Elley, du Pont Company, Wilmington, Del.; Chemical Education, John N. Swan, Baltimore; Fertilizer Chemistry, E. W. Magruder, Norfolk, Va.; Gas and Fuel Chemistry, G. St. J. Perrott, U. S. Bureau of Mines, Pittsburgh; History of Chemistry, Prof. Lyman C. Newell, Boston University; Leather and Gelatin Chemistry; F. S. Hunt, Chicago; Medicinal Chemistry, Arthur D. Holmes, Stoneham, Mass.; Agricultural and Food Chemistry, J. S. McHargue, Lexington, Ky.; Organic Chemistry, Prof. James B. Conant, Harvard University; Paint and Varnish Chemistry, P. R. Croll, Milwaukee; Petroleum Chemistry, Carey R. Wagner, Chicago; Physical and Inorganic Chemistry, Prof. Farrington Daniels, University of Wisconsin; Rubber Chemistry, H. W. Winkelmann, Akron, O.; Sugar Chemistry, J. K. Dale, Brooklyn, N. Y.; Water, Sewage, and Sanitation Chemistry, W. D. Hatfield, Decatur, Ill.

Named associate editors of the Society's Technologic Monographs are F. A. Lidbury, Niagara Falls, N. Y.; A. D. Little, Cambridge, Mass.; C. E. K. Mees, Rochester, N. Y. Prof. F. K. Cameron, University of North Carolina, and Prof. H. B. Weiser, Rice Institute, Houston, Tex., are appointed representatives of American Chemical Society on editorial board of "Journal of Physical Chemistry," succeeding Prof. R. A. Gortner, University of Minnesota, and Prof. F. A. Kendrick, University of Toronto. Dr. Elmer B. Kohler, Harvard, is named to succeed Prof. Lind as associate editor of "Journal of the American Chemical Society."

Fall meeting of the Society in 1931 will be held in Buffalo, N. Y., under auspices of the Western New York and Erie Sections of the Society.

Shellac importers and Calcutta shippers agree on acceptable content of insoluble impurities for various grades as follows: Rysacki, Rungeen and Rangoon Seedlac, 8 per cent; Kusmi shellac, 5; USSA TN, 5; Pure TN, 5; USSA Pure TN, 5; heart, 4; fine, 4; superfine, 3. Rosin content in UUSA TN is limited to 4 per cent, effective immediately. For finer grades limitation of rosin has been postponed until January 1, 1931. Contracts made after that time will be allowed 1 per cent content. Shipments which do not meet standards will be subject to certain penalties. Reductions may be charged against payments due shipper, varying according to amount of impurities above stipulated percentage; or in some cases the shipment may be rejected to be replaced by suitable supplies at his expense.

Moroccan phosphates shipments during first six months of 1930 amounted to 1,040,093 metric tons, as compared with 756,746 metric tons during the same period of 1929. The destination of the Moroccan phosphate exports for the first half of 1930 in metric tons was as follows: France, 185,270; Spain, 167,797; Portugal, 10,022; Holland, 111,166; United Kingdom, 49,059; Denmark, 71,833; Sweden, 3,812; Norway, 6,597; Italy, 147,269; Belgium, 14,858; Switzerland, 5,445; Germany, 81,980; Czechoslovakia, 23,364; Hungary, 9,094; Yugoslavia 2,850; Rumania, 811; Russia, 41,755; Poland, 3,219; Dantzig, 2,615; Baltic States, 10,348; South Africa, 15,392; Australia, 44,916; United States, 6,035; Japan, 15,530; Morocco, 8,914; Other countries, 232; total, 1,040,093.

National Industrial Conference Board calls attention to fact that official evidence of the prevalence of wage reductions is almost entirely negative, and that tendency to place emphasis on wage reductions creates untrue but depressing effect on public mind.

An American Chemical Invasion of Germany

By William T. Daugherty

American Trade Commissioner, Berlin

AMERICAN chemical processes are finding an increasingly receptive market in Germany. The trend has become in fact so pronounced that almost without exception the outstanding chemical developments accomplished in the United States during the last ten years are now in actual use or preparations are being made for their early introduction into the German chemical industries.

Among the more important are: (1) the American nitrocellulose lacquer process; (2) a perfected American nitric-acid oxidation process; (3) an American catalytic ammonia synthesis; (4) a perfected American process making titanium white paint; (5) an American process imparting a wood-grain surface to metal and other bases; (6) a petroleum cracking process that promises to be used in Germany to treat heavier fractions occurring in connection with the hydrogenation of tars; (7) the classic precipitator, or electrofilter removing impurities from condensed gases or precipitating therefrom valuable commercial salts; (8) an American flotation system for metal extraction from ores; (9) the American process producing contact sulfuric acid employing a vanadium oxide catalyst; and (10) the classic American process producing plastics by formaldehyde condensation. Other American processes are in a stage of penetration into this market.

American Nitrocellulose Lacquer in Germany

Formal announcement was made in the German press in late November that an American company had agreed with "Oberkoks" to associate in production of the former's superior lacquer in plants of the latter's subsidiary, the Oskar Mosebach A. G. Appearance of the American company's lacquer on this market put it into direct competition with production of a rather extensively developed industry, including that of the German Dye Trust. The American company simply shares a process pool with German explosives works that have been merged by the Dye Trust. This association also involves an investment in the German explosives combine of approximately 7,500,000 marks, an amount also invested by British Dynamite Nobel (Imperial Chemicals Industries, Ltd.). The American lacquer enters into direct competition with all other German lacquers, including the I. G., on its own merits.

It is understood that an American company has assigned its ammonia oxidation process making nitric acid to a large Frankfort-on-the-Main concern (Metallbank), which was reported as intending to license its operation to the I. G. The American process is understood to employ a base metal catalyst and must excel any developed by the German Dye Trust, otherwise, the I. G. would not put it into operation. The license or sale of this process by the American company to Germany may be considered as in a current stage of development.

American Ammonia Synthesis Process

In connection with the recent expansion of ammonia production involving the catalytic nitrogen-hydrogen synthesis using hydrogen separated in liquefaction of coke-oven gas, abundantly available in Ruhr and other coke plants, two local enterprises, Gewerkschaft Ewald, in the Ruhr, and the Prince of Pless interests, at Waldenburg-Silesia, announced that they would operate an American ammonia synthesis. The American process is distinct in attaining a higher ammonia recovery on the first run, approximately 20 per cent upward, than any other standard process. It employs around 300 atmospheres pressure, against 100 atmospheres in the Uhde or Mont-Cenis process, 200 in the Haber-Bosch process, 750 in the Casale, and 1,000 in the Claude synthesis.

Choice of the American process for exploitation is significant as its operation goes into direct competition with three other coke-oven-gas hydrogen syntheses producing in Germany: The Mont-Cenis process (Gaveg); the Casale synthesis by Gewerkschaft Victor (Kali-Kloeckner), at Rauxel; and Ruhrchemie (Casale) syntheses. Leunawerke ammonium sulfate is produced by employment of gypsum instead of sul-

Abstracted from an article in Commerce Reports.

furic acid while the other processes mentioned get their ammonium sulfate over sulfuric acid.

American Titanium White in Germany

Fortified with titanium ore reserves in Norway and with development of its process making titanium white, another American company is under contract to the German Dye Trust, licensing its process for making this paint pigment base, which has unusually good smearing and finish qualities. The Dye Trust is manufacturing under this license and is selling in Central European markets, including Germany, through a special company founded for this purpose—Titan G. m. b. H., at Leverkusen, where the I. G.'s lithopone interests are also centered.

Other American Processes in Germany

An enthusiastic reception has been given to the process of another American company, imparting (partly by photographic and copper-plate impression reproduction) a wood finish to metal surfaces. The process is operated by the so-called Masa G. m. b. H., of Berlin, in which the German General Electric (A. E. G.) and the German Dye Trust are jointly interested. Advent of the steel dwelling, increasing use of steel furniture, and, last but not least, the development of the steel railway car, attract application of the process, so that its future is encouraging.

An agreement between the German Dye Trust and a large American petroleum company was reported as pooling oil patents of the processes of the concerns. Hydrogenation of tar for gasoline occurs in two locations in Germany, one at the Leunawerke, at Merseburg, incidentally the world's largest atmospheric nitrogen fixation plant, and the other at Duisburg-Meiderich, where the Gesellschaft für Teerverwertung leads a combine calculating to operate sufficient raw coal dust to produce 100 tons gasoline daily.

American Electrofilter in Use in Germany

The Lurgi Co., Frankfort-on-the-Main, supplies the electrofilter, or precipitator, of American origin, used almost universally in chemical and other plants for removal of anything from smoke to commercial salts in purification of condensed gases. The name of the American inventor is coupled with that of the German, Moeller, in identifying this precipitator.

In this same category might be mentioned the American flotation system for extracting metals from ore, particualrly copper, which is generally used in Germany.

Furthermore, a tie-up is understood to have been effected between the American contact sulfuric-acid process employing a vanadium oxide catalyst to whose perfection a German (Jaeger) also contributed. It is understood that the German Dye Trust (and the French Kuhlmann Co. as well) are operating this process now.

Finally, another well-known American company has licensed to its German manufacturing branch its process making formaldehyde condensations plastics. Various articles are made but the greatest commercial use is as an insulating material. The German subsidiary is making a sizable production in its plant near Berlin, and the product is becoming ever better known.

Miscellaneous Products

There are, of course, a number of other chemical products that are made and sold in Germany, including so-called chemical specialties, particularly in the toiletries line. Manufacture on the spot according to American formulae is preferred in cases, in order to reduce costs. Occasionally, the American specialty is imported in bulk and packed in Germany. The line of American chemical specialties is becoming so diversified that it includes even certain medicinal specialties, while German agents are competing with one another to introduce many of the well-known medicinal and toilet lines of household popularity in the United States.

In conclusion, it is scarcely necessary to repeat that a steady and thriving trade is maintained in a wide variety of American heavy, prime, raw, and semi-finished chemical materials that are indispensable for further chemical processing—such as naval stores, sulfur, benzol, carbon black, borax, and phosphate rock. These sales of American chemicals, exclusive of petroleum products to Germany have been estimated, at an annual value of around $20,000,000. This amount, of course, also excludes the financial returns from American chemical-process operations in Germany.

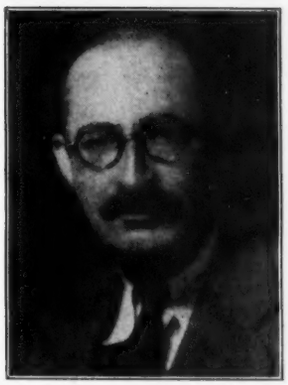
Rayon shipments by manufacturers increase 54.2 per cent from 1927 to 1929, according to U. S. Census, which places 1929 total at 116,492,554 pounds, compared with 75,555,439 pounds in 1927. Figures reflect lower price levels, the total value increasing only 32.3 per cent, from $106,468,752 in 1927 to $140,811,345 last year. In addition, the rayon industry produced commodities allied to rayon (sheets, straw, horse hair, etc.) to the value of $8,465,143 last year, compared with $3,419,584 in 1927, an increase of 147.5 per cent.

German artificial nitrogen consumption during year ended June 30 falls 20,000 metric tons from 430,000 total of preceding year. I. G. Leunawerke plant, Merseburg, is producing little more than one-third capacity, with little more than half the output of corresponding period a year ago. Germany is expected to export about 150,000 metric tons in current year as against peak shipments of 256,000 metric tons in 1928.

Asbestos production in province of Quebec, main United States source of supply, amounts to 306,055 tons during 1929, an increase of 12 per cent in quantity and 17.21 per cent in value over 1928. Market absorbed all shingle fibre produced, but not all production of millboard and paper fibres.

Zinc stocks in hands of producers come to 132,947 short tons October 1, an increase of 10,312 tons compared with September 1, according to American Zinc Institute.

What Makes a Good Emulsion



Continental News Service

By H. Bennett
Glyco Products Co., Inc.

The new use of ammonium linoleate offers several advantages as an emulsifying and waterproofing agent.

THE subject of emulsions is one that is pertinent to most manufacturers of special cleansers, polishes, disinfectants, fly-sprays, deodorant sprays, cutting oils, textile lubricants and softeners, cosmetic preparations and other countless products.

Without going into the complex theoretical nature of emulsions, it behooves us to consider for a moment the countless pitfalls surrounding the preparation of good technical emulsions. By a good emulsion is meant one which causes a more or less permanent association of oils and water or wax and water, in proportions suitable for its varied functions. For an emulsion which is made and used within a short time, longevity is not a vital factor. For one which is to be packed, shipped, stored and then allowed to stand on a dealer's shelf or in the consumer's home for lengthy periods, it is quite essential that it be extremely stable and not separate into two or more layers. Most manufacturers have resigned themselves to the conclusion that non-separating emulsions are impossible to make. The consumer knows from experience that he must "shake bottle before using". Recent developments in this field have shown how fallacious the manufacturer's reasoning is and that the "shake" label need no longer be considered as axiomatic.

As a prerequisite for the preparation of such stable emulsions the procedure given below must be adhered to without deviation. Furthermore, no acids or salts must be brought into contact with them. After this procedure has been mastered and one or more formulae as will be given later, have been tested out, then—and then only is it safe to begin modifying the ingredients used to get special effects or to increase the stability.

It seems that many of the poor emulsions now marketed have not been improved because their makers realized how risky a step it would be to attempt any modification in their formulae. Many of these formulae are revered as many aged things are. Some have been handed down from generation to generation as "secret-formulae"; others have been dug from dusty, yellowed tomes and have long since outlived their usefulness.

In these days of constant change and advancement, it is strange to say that many of these products have not been improved upon. At the instigation of a manufacturer of wax emulsion polishes, there was started, about three years ago, a series of investigations to overcome some of the obstacles in the way of preparing a perfect product. Since the greatest difficulty had been encountered in making stable emulsions of carnauba wax in water, possessing a low viscosity, it was decided to use this most difficult preparation as a criterion for establishing a technique for this class of work.

All of the commonly known, as well as many of the less well-known emulsifying agents were tried in many different concentrations. The results were far from satisfactory until ammonium linoleate was tried. It was soon found that a modified ammonium linoleate paste gave an emulsion highly satisfactory both from a laboratory and manufacturing standpoint.

The method finally evolved for preparing such an emulsion of carnauba wax in water is as follows:

Place 12 lbs. of ammonium linoleate paste in a pot and work in slowly with stirring 80 lbs. of water. Then add 340 parts of water slowly while mixing thoroughly until completely dissolved. Heat may be applied to make solution take place more readily. Heat this solution to 90°C. In another pot melt 90 lbs. of carnauba wax and heat to 90°C. The solution of ammonium linoleate paste kept at 90°C should now be stirred with a high speed stirrer and then the melted wax should be run in very slowly. Continue rapid stirring until the mixture is homogeneous and

keep stirring until the temperature has fallen to 40°C or lower. The emulsion is now finished. If it is not politic to remove it from the mixer forthwith, the pot must be covered to prevent undue evaporation of water, which may cause the formation of a thin skin of wax at the top of the emulsion. If this method be followed accurately then the emulsion will be highly stable and uniform. Working at too low a temperature will cause a thick "bree" of wax to form on the surface.

Other Similar Emulsions

Other waxes, greases and solids (melting below 100°C) are emulsified by the above method using the proportions given in the appended table. It must be borne in mind that when an emulsion is completed it is not advisable to add anything to it. All added ingredients must be dissolved either in the melted wax or water before the emulsion is made. For example, if it is desired that the emulsion be colored, then an aniline dye is dissolved in the water used. If a mixed oil-wax emulsion is to be produced, the oil is dissolved in the melted wax. This type of oil-wax emulsion is ideal for use as a furniture or automobile polish. It does not require the hard rubbing required by most polishes. If only a small proportion of oil to wax be used then the finished polish may be applied in the usual way and then rubbed off quickly to produce an extremely high lustre of great durability. Surfaces polished with such an emulsion will not show finger marks or attract dust. Care must be taken not to incorporate too much oil or some of these valuable characteristics will be lost. In place of oil in such a polish it is often desirable to use a hydrocarbon like kerosene or solvent naphtha.

Wax Emulsions in Textile Field

Wax emulsions have been the despair of textile chemists. While they have made good emulsions in the laboratory, their formulation has been so complex that results in the mill have been far from successful. Simple wax emulsions such as the above have eliminated these uncertain results and have been keenly appreciated in silk and rayon plants.

Since most furniture and automobile polishes are merely oil water emulsions, they can be made without the use of heat. For example: 10 lbs. of ammonium linoleate paste is put in a pot and 90 lbs. of water is worked in very slowly (to avoid lump formation). The 90 lbs. of mineral oil is run in slowly while stirring vigorously. A rich, creamy emulsion results. If an emulsion of greater viscosity and stability is desired then instead of 90 lbs. of mineral, 45 lbs. of mineral, 44 lbs. of kerosene and one lb. of cresylic acid is used.

To oil polishes of this type may be added varying amounts of tripoli or other fine abrasives for removing corrosion and oxidation films from metals like brass, nickel, copper, silver, etc. By decreasing the amount of water in the formula a paste silver or other metal polish is made. Not only are these highly efficient but obnoxious odors of ammonia and oleic acid are eliminated.

In many places kerosene, naphtha, benzine and other inflammable solvents are used to clean dirt, grease and fresh printers' ink from machinery, floors and fabricated wares. The fire hazard attendant to this method is so well known that it need not be dwelt upon. Emulsification of these solvents palliates many of their inherent evils and adds many patent advantages. The fire hazard is practically eliminated, for water raises their flash points tremendously.

Kerosene Emulsions

A typical practical illustration is the case of kerosene emulsified according to formula No. 2. The flash point is raised to 170°F and if a match is dropped into this emulsion it will be extinguished at once. These emulsions, because of greatly decreased surface tension, penetrate into the tiniest crevices and float out particles of dirt and grease which, ordinarily, are not even touched. The vapor pressures of these emulsions are much lower than that of the solvents, which means that the evaporation loss is lowered and an economy results. This is of especial interest where quick evaporating solvents like benzine, gasoline and carbontetrachloride are used. Since water is our cheapest solvent, its presence in substantial amounts lowers costs considerably. The addition of small amounts of cresylic acid or somewhat larger amounts of pine oil to emulsions of this type gives them a clean antiseptic odor—which imparts a clean antiseptic odor to the objects cleaned. Since these emulsions possess a lower alkalinity than many soap solutions and are more efficient detergents, their use is increasing by leaps and bounds. Furthermore they are not only harmless to the skin but prevent reddening and chapping. In factories (like printing plants) where large quantities of rags are used for cleaning presses, rollers and pressbeds the rags need not be discarded when dirty, for they wash out very readily because the dirt and ink is in an emulsified state, when such a cleaner has been used.

Fly and other insect sprays for home and agricultural use are made similarly by using a kerosene extract of pyrethrum instead of plain kerosene. Where the odor of the kerosene or other oil is obnoxious a little methyl salicylate or other odoriferous oil is dissolved in the emulsion.

Vegetable and Fish Oil Emulsions

Vegetable and fish oils are emulsified in an analagous way—but in this connection it is well to bear in mind that a number of trial emulsions may be necessary to get the proper formulation, for these oils do not form stable emulsions as readily as the hydrocarbons.

Since water is present in substantial quantities, it is evident that in emulsifying it is not possible to heat much above 100°C (the boiling point of water).

How then may solids melting at temperatures above 100°C be emulsified? Only by lowering their melting points to 100°C or lower. This is done by incorporating a certain amount of high boiling water insoluble liquid such as kerosene, turpentine, mineral oil, pine oil, castor oil, etc.

Below are given a number of practical emulsion formulae.

FORMULAE

(All Parts by Weight)

No.	*Material Emulsified*	*Parts*	*Parts of Water*	*Ammonium Parts Linoleate Paste*
1.	Mineral Oil	90	90	10
2.	Kerosene	90	90	8
3.	Naphtha	90	100	7
4.	Benzol	90	100	7
5.	Gasoline	90	100	7
6.	Cottonseed Oil	90	90	11
7.	Linseed Oil	90	150	8
8.	Olive Oil	80	60	10
10.	Castor Oil	90	80	12
11.	Pine Oil	90	90	10
12.	Chinaweed Oil	90	80	12
13.	Peanut Oil	90	80	12
14.	Cocoanut Oil	90	80	12
15.	Paraffin Wax	90	320	24
16.	Carnauba Wax	90	420	12
17.	Asphaltum	40	200	8
18.	Beeswax	90	500	12
19.	Glyco Wax	90	500	12
20.	Ozokerite	90	400	14
21.	Turpentine	90	100	8
22.	Nitrobenzol	90	100	8
23.	Orthodichlorbenzol	90	100	8
24.	Methyl Salicylate	90	100	8

The above formulae can be lessened in cost by reducing the amount of emulsifier used. The minimum can be determined by experiment. Increasing the amount of water will give thinner emulsions.

In making emulsions of olive oil and other products, which may become rancid, 1/10 of 1% benzoate of soda should be dissolved in the water used.

Many waterproofing processes are dependent upon the integral or surface deposition of insoluble soaps. The simplest illustration is the interaction between a soluble soap such as sodium palmitate and calcium hydroxide where insoluble calcium palmitate is precipated. The objection to waterproofing reactions of sodium or potassium soaps is that all of the liberated soluble alkali is not washed out and not only causes deterioration in waterproofed material but because of the gradual reversibility of this reaction, the waterproofing efficiency diminishes with age. To eliminate this objectionable feature, recourse is had to ammonium soaps. Here the liberated ammonium hydroxide gradually evaporates and the insoluble metallic soap remains fixed. In materials of construction, like concrete, stucco, etc., large quantities of ammonium stearate are being used for this purpose. Ammonium linoleate works equally well, at a lower cost, and it also gives a smoother "mix" and is more flexible when the mass has "set". The proportions used are identical with those of ammonium stearate. The metallic radical in materials of construction is calcium and the insoluble soap precipitated is calcium linoleate.

In waterproofing textiles, the fabric is run through a vat of ammonium linoleate dissolved in water; the excess is squeezed out between calenders and then run through a vat of an aqueous solution of barium or other metallic hydroxide. Here the barium or ether metallic linoleate is precipitated. The fabric is then run under tension through heated calenders. This process also protects the fabric against mildew.

For waterproofing paper and other cellulosic materials, the solution of ammonium linoleate is put into the beater with the pulp and the insoluble soap is precipitated by a metallic salt or alkali solution at a time best determined for each individual process. In addition to waterproofing, additional flexibility and "slip" is imparted.

Wax emulsions made with ammonium linoleate are also used for special waterproofings, by precipitating the metallic soaps along with the wax. This combination is often used where a lustre must be imparted to the finished product as well as water impenetrability.

The examples cited above are merely some of the "high-spots" touched in the work done with ammonium linoleate paste. Many fields have not been touched and it will, no doubt, suggest novel applications to chemists in many industries.

Phosphate exports from Florida to Japan during September exceed those to Germany, hitherto the principal market, by 8,500 tons. Total of 83,242 tons makes September one of heaviest phosphate shipment months in history of port of Tampa.

Crude methanol production as reported by Department of Commerce, was 272,823 gallons, as compared with 230,162 gallons in July and 656,414 gallons in August, 1929; 535,803 in August, 1928, and 624,710 in August, 1927.

Potash production in Mulhouse basin increases substantially first seven months of year, with 1,872,000 tons as compared with 1,749,000 tons in 1929, despite strike which greatly reduced production in June.

Benzol exports to Germany during August amount to 6,788,357 gallons, valued at $1,352,198. Total of exports during first eight months of year was 65 per cent greater than during same period in 1929.

Fermentation citric acid is produced on commercial basis in United States, United Kingdom and Belgium. Process has made large inroads on Italian trade in product.

Baltimore fertilizer manufacturers expect heavy movement of fertilizers this fall, 20,000 tons having been ordered from Maine and the British provinces.

American Manganese Producers' Association meets in third annual convention in Washington, November 10-11.

Phosphate mining in Wyoming begins with sinking of 100-foot slope into phosphate vein near Sublet.

Is Your Plant taking advantage of this opportunity? . . .

Opportunity for Putting the Plant in Order

NOW is the time when the management of a mining company has a chance to show its ability to manage. Will it shut down, or will it seize the opportunity to prepare for better days? At times like these the weak-nerved executive is prone to get that hollow, "gone" feeling, which, when analyzed, is found to be merely fear—the desire to quit. Experience, if he has had it, should tell him that dull times have their advantages. Booms never last; and well it is they do not. Only the average counts in the long stretch. When the pace slows down, as it has at the moment, conditions are much better for making alterations, replacements, and repairs.

"Any good business man," writes a well-known executive, "has confidence in himself, his business, and its future, and recognizes the wisdom of making repairs and renewals at a time when the demands upon his equipment are less urgent than they normally are." Done at a busier time, such repairs will increase production cost, and the resultant expenditure will be greater than if improvements and replacements were made when operations are subnormal.

Sooner or later the run-down plant must be rehabilitated. Perhaps it will operate a little while longer as it is, but a study of cost sheets will show that expenses mount because of breakdowns, consequent lost time, and other causes. Labor is now plentiful, and perhaps nervous about its job. Later, when conditions improve, this condition will probably be changed. Now is the time for putting the plant in order. Periods of depression, like booms, do not last forever. Operators who seize the present breathing spell to make equipment shipshape and to prepare for maximum efficiency when conditions improve will be glad later on.

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Forward-looking companies are taking advantage of this favorable situation. The editorial reproduced herewith is from Engineering & Mining Journal, July 24.

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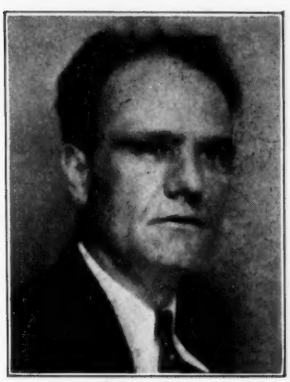
SAFE Handling of Chemicals

will help you to reduce insurance rates.

By James C. Cook

Sales Manager, Schwenk Safety Device Corporation



HANDLING acids in chemical plants is being made a safer operation each year, due largely to the greater importance placed on safety methods and through the use of better equipment. The advance of methods used is reflected by the decrease in chemical plant insurance rates during the last few years.

On the other hand, less progress has been made by process industries where acids are handled in smaller quantities. These users, constituting a large part of the chemical market, have not been so quick to adopt safe and practical methods for handling of acids, because the use of acids is a smaller part of their operations and consequently less attention is given to it.

For example, most small battery shops using acids in carboy units have no safe means for handling this bulky container and safely draining from it. The usual practice is to place a box before the carboy and tilt the carboy over it in order to pour out the contents. The container cannot be thoroughly drained in this way. The little acid left in these "empties" often causes injury. Even syphons cannot thoroughly drain the last drop of acid, because they do not touch the very bottom.

Similar conditions are found in nearly all industries where acids are used in comparatively small quantities and are drained from the carboy or drum little by little. Probably the chemical industry is mainly at fault because of these conditions. While it is true that most acid producers are interested in safe handling, but few have taken any steps to make their use easier and safer for the consumer. As a result, acid accidents are more numerous than they might be. Each injury results in an unfavorable precedent against the acid and often results in agitation for use of some substitute.

The number of injuries received from the handling of acids in industry is indicated by "Industrial Accidents in New York State." Information given by the Metropolitan Life Insurance Co., Research Department, shows that acids were responsible for 219 compensated accidents in the twelve months ended June 30, 1929. The figure was 214 in the corresponding 1928 period and 225 in 1927.

The 1929 figures further reveal that twenty-four of the cases resulted in permanent partial disability and 192 resulted in temporary disability. A total of 1,457 weeks working time was lost. The figures for this year show a decrease from 1928 when 3,189 weeks were lost to industry in New York as a result of acid accidents. In 1928, $61,864 were paid in compensation as a result of accidents caused by acids.

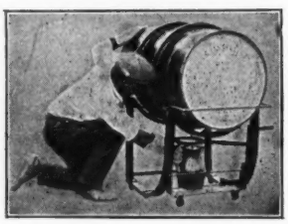
These figures while large do not completely show the

Proper handling of dangerous acids means reduced insurance rates

total number. Many injuries are unreported. Others caused, not by acids themselves, but by dropping heavy carboys or drums containing them are classified under the heading, "Handling Heavy and Bulky Objects."

Accidents from Carboys and Drums

Because of the weight and bulky construction, carboys and drums are responsible for no small part of the accidents so classified. In New York during the twelve months period ended June 30, 1929, there were under this classification 19,724 accidents. These resulted in 75 deaths, 2,875 permanent partial disabilities and compensation claims totalling $3,813,843 according to figures made available by the Metropolitan Life Insurance Company.



Heavy drums should be handled by equipment designed for the purpose

That more attention should be given to the safe and efficient handling of acid containers and heavy drums in barrels is self evident. Figures for New York are representative of the accidents occurring in other industrial sections of the country and it is not unreasonable to estimate that about five times the total of the above figures would correspond to the actual number of injuries in the entire country.

Safe methods through the use of devices for handling and draining containers of acids and other fluids will lessen the number of accidents considerably. Pouring acids without the use of a safety device and the placing of heavy drums and barrels on makeshift platforms should be supplanted by scientific handling devices.

Although safety devices are designed primarily for the safe handling of containers they are also a labor saver and saver of time.

Greater Safety in Modern Plants

Modern plants are rapidly taking advantage of the greater safety and efficiency offered through the use of safety equipment. They are doing much to reduce the number of accidents, the result of acid burns and handling of heavy containers. The chemical industry can do much to increase the market for acids and lessen the prejudice against them by bringing to the attention of customers the monetary and humane value of scientific equipment for handling dangerous and valuable liquids.

European Nitrogen Production Forecast

Societe Generale de Belgique, affiliated with other Belgian nitrogen producers in world nitrogen agreement, estimates that allotted production of synthetic nitrogen by nine members of cartel for fertilizer year 1930-1931 will reach a total of 1,087,100 tons, not including the natural nitrate output of Chilean industry, which is also a member of the agreement. Societe Generale de Belgique allots production to the various countries in its estimate as follows: Germany, Great Britain and Norway combined, 840,000 tons; France, 75,000 tons; Belgium, 73,500 tons; Italy, 39,000 tons; Holland, 28,400 tons; Poland, 23,200 tons, and Czechoslovakia, 8,000 tons, all in terms of actual nitrogen. The total, 1,087,100 tons, compares with a total synthetic production of 1,285,000 tons during the year 1929-1930.

It is possible that ratio of by-product sulfate of ammonia to that of ammonia synthesis nitrogen will be increased for present year in this estimate owing to increased uses of sulfate of ammonia processes in Germany and Britain. The sulfate of ammonia output in all countries during 1928-1929 was 315,000 tons, and in 1929-1930 this was increased to 425,000 tons. Chilean production in actual nitrogen terms last year amounted to about 455,000 tons. Sulfate of ammonia stocks have increased steadily in Germany since the first of the year, when they amounted to about 42 per cent of the total output of the Ammonia Sales Union, a member of the German Nitrogen Syndicate. The latter accounts for a production of between 90,000 and 100,000 metric tons of primary nitrogen.

Societe Generale des Produits Tartriques, Paris, with capital of 4,000,000 francs, launches a new issue of 20,000 shares at nominal price of 500 francs each. Company will exploit the world over its process for manufacture of tartaric acid, residue remaining from the drainage of wine and skins of pressed grapes. The Societe opened a plant at Saint-Laurent-d Aigouzes producing annually 1,000 tons of tartaric acid in the form of calcium tartrate. It has just acquired a process for manufacture of calcium tartrate from grape skins by first extracting all alcohol and thereby becomes the most important producer of tartaric products in France.

Long-term contracts (for from six to twelve years) have been closed with local wine co-operatives, thus securing from 30,000 to 40,000 tons of grape skins. Grape skins are treated from September to January in seven plants situated near wine-producing centers and are then distributed to the Toulouse, Carcassonne and Narbonne regions.

The Societe recently concluded a contract with an important German firm for the sale of 1,000 tons of tartaric acid annually.

World lead production amounts to 154,164 short tons in August against 151,356 tons in July and 150,541 tons in June, according to American Bureau of Metal Statistics. Imports of lead in unmanufactured form total 22,574 metric tons in August against 20,642 tons in July and 27,916 tons in June. Exports of unmanufactured lead by the United States amount to 3,891 tons in August against 4,090 tons in July and 5,400 tons in June.

Two oceangoing whale oil factories, largest of their type afloat, capable of producing approximately 1,500 barrels of oil daily, are constructed for Norwegian whaling companies. Cargo capacities of 95,000 to 100,000 barrels of whale oil are spoken of in connection with new vessels, and daily production of about 1,500 barrels of oil.

United States Bureau of Mines Bulletin No. 316 describes process for production of potassium sulfate along with double salt of potassium and magnesium sulfates.

Experiments in extraction of tar from bituminous sands of McMurray area, Northern Alberta, Canada result in 95 per cent pure tar being obtained from sands.

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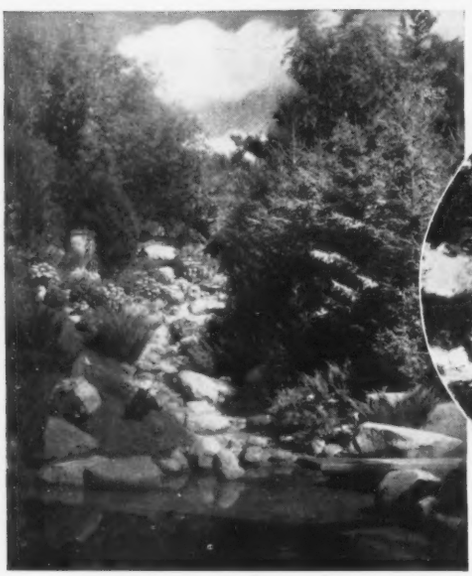
CHEMICAL

Photographic Record

Herbert Henry Dow

Born Feb. 26, 1866
Died Oct. 15, 1930

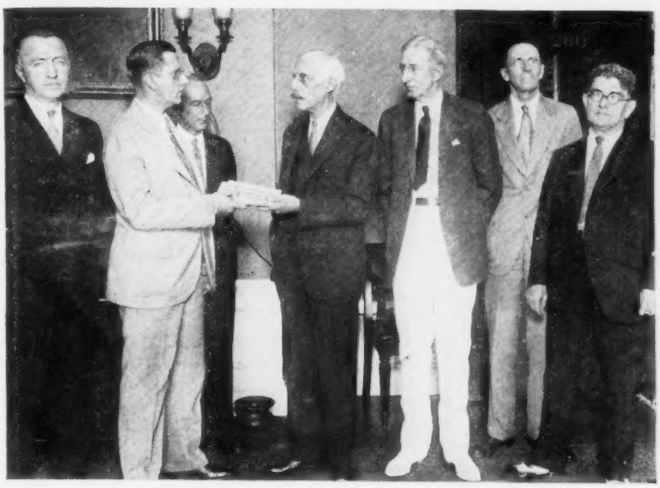
Dr. Dow at work in his orchard



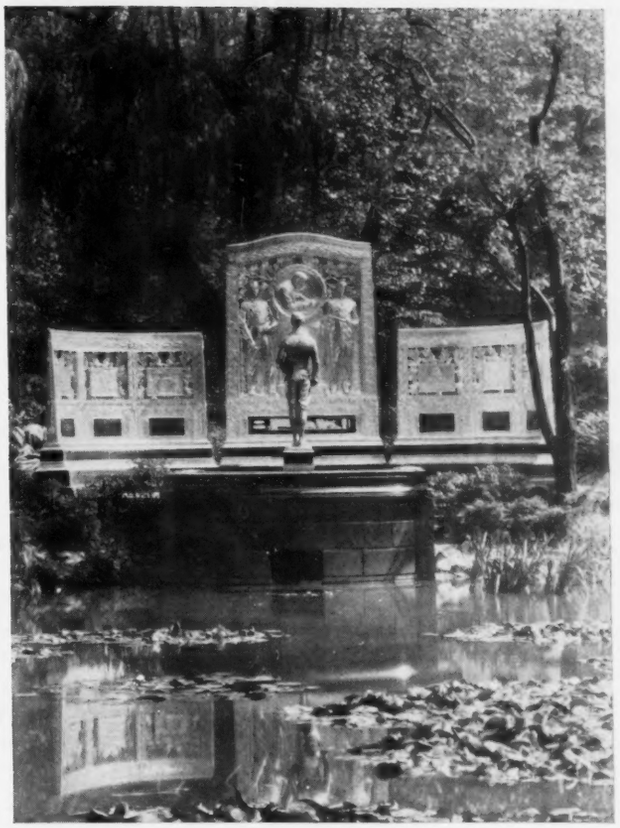
Two beauty spots on the grounds of Dr. Dow's estate at Midland, Mich. Gardening was one of his hobbies

Bromide plant of the Midland Chemical Co. in 1900 (above) and (left) the chemical city to which it grew under Dr. Dow's direction

NEWS REEL
of Chemical Activities

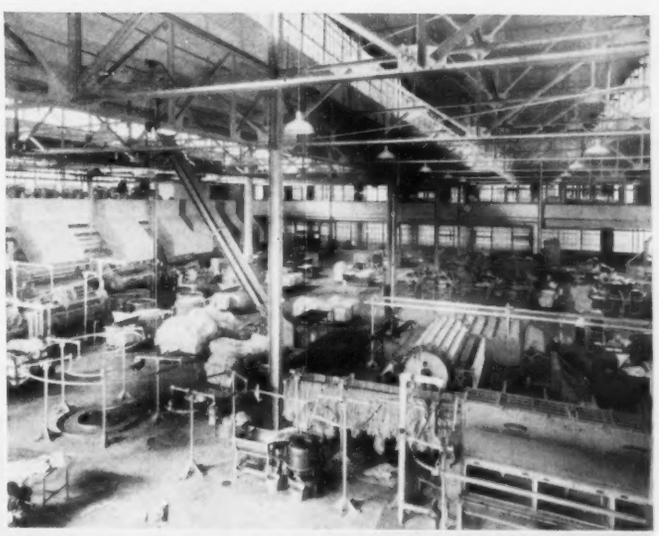


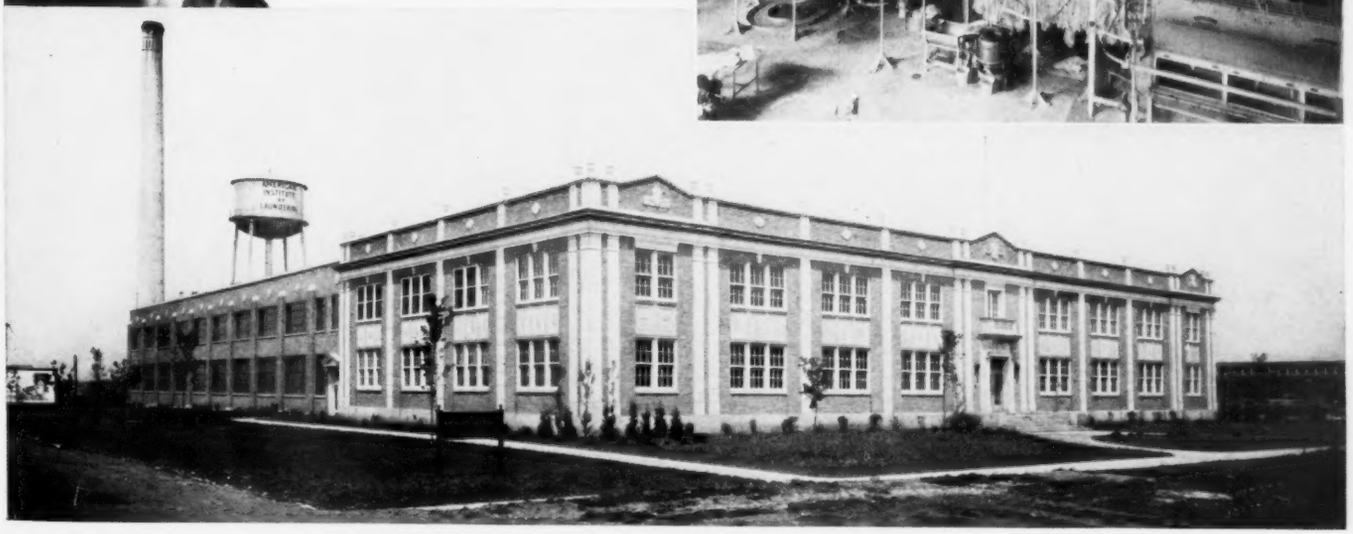
Presenting the Chemical Foundation check for $100,000 to the National Institute of Health for a chemical research fellowship. (Left to right): Paul Smith, secretary of the Fellowship of Chemistry; W. W. Buffum, general manager of the Foundation; Dr. T. S. Thompson; Andrew Mellon; Dr. Hugh S. Cummins; Dr. G. W. McCoy, National Institute of Health; Dr. W. F. Keohn, Washington representative of the Foundation

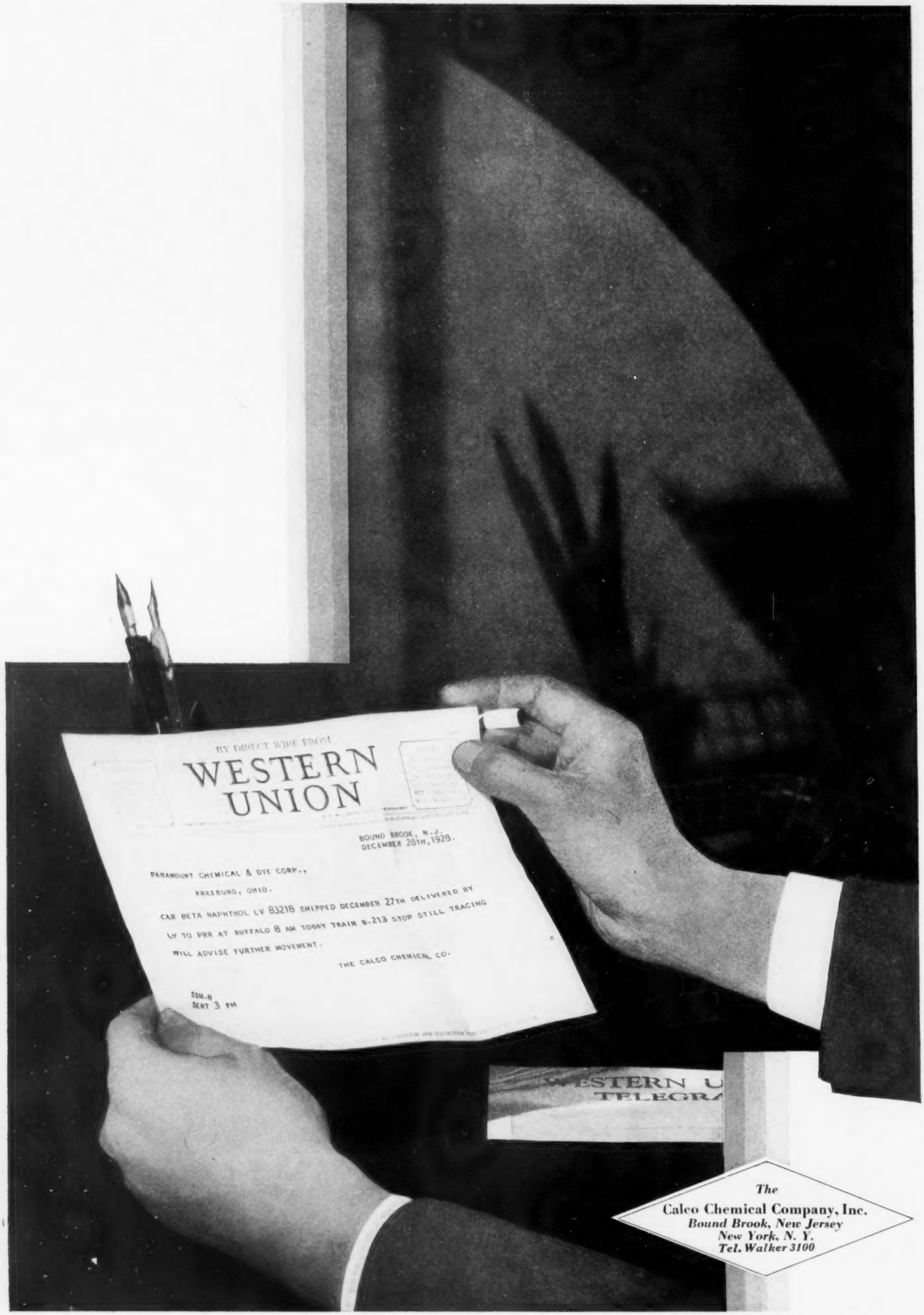


Memorial to George Westinghouse, in Schenley Park, Pittsburgh, dedicated October 6

(Left) George H. Johnson, director of research at the new American Institute of Laundering, Joliet, Ill. Below is the building and (right) the commercial laundry unit



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HARD RUBBER
Prevents Corrosion and Contamination

By D. D. Wilkins

American Hard Rubber Company, Inc.

Have you an unsolved problem involving corrosion or contamination? Hard rubber presents important possibility to the perplexed plant manager.

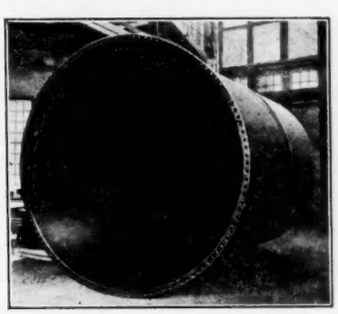
ONE of the greatest elements of waste in industrial processing is caused by the corrosion and the consequently rapid deterioration of expensive equipment which must be replaced at frequent intervals. A by-product of this condition causing further expense is the contamination of valuable chemical products and the loss of productive time due to shut-downs for repairs and replacements.

During the past decade there has come into this field a growing appreciation of the value of hard rubber used as a contact material in various practical forms between active solutions and metal equipment. The resultant savings have been little short of amazing.

Suitable for Inorganic Acids

Hard rubber chemical equipment is now provided in many useful forms to handle almost all inorganic acids and solutions of their salts with no danger of corrosion or contamination. The outstanding exceptions, sulphuric acid above 50° Be. and nitric acid above 15° Be. are the only common active acids for which this equipment is not suited. The weaker strengths of these same acids, however, which rapidly destroy some metals and alloys will not attack hard rubber.

Hard rubber pumps, pipe, fittings, tanks and utensils have been generally known and used in the chemical engineering field for over forty years. Yet great progress has been more recently made in specialized applications which have considerably broadened the scope of its usefulness. One recent development is the production of heavy duty hard rubber pipe and fittings made necessary by modern high pressure requirements and out-of-the-usual mechanical conditions. Such heavy duty equipment is made with increased wall thickness. This makes possible the attachment of feed and drain side outlets of smaller diameter, tapped and threaded at convenient points on main line systems.



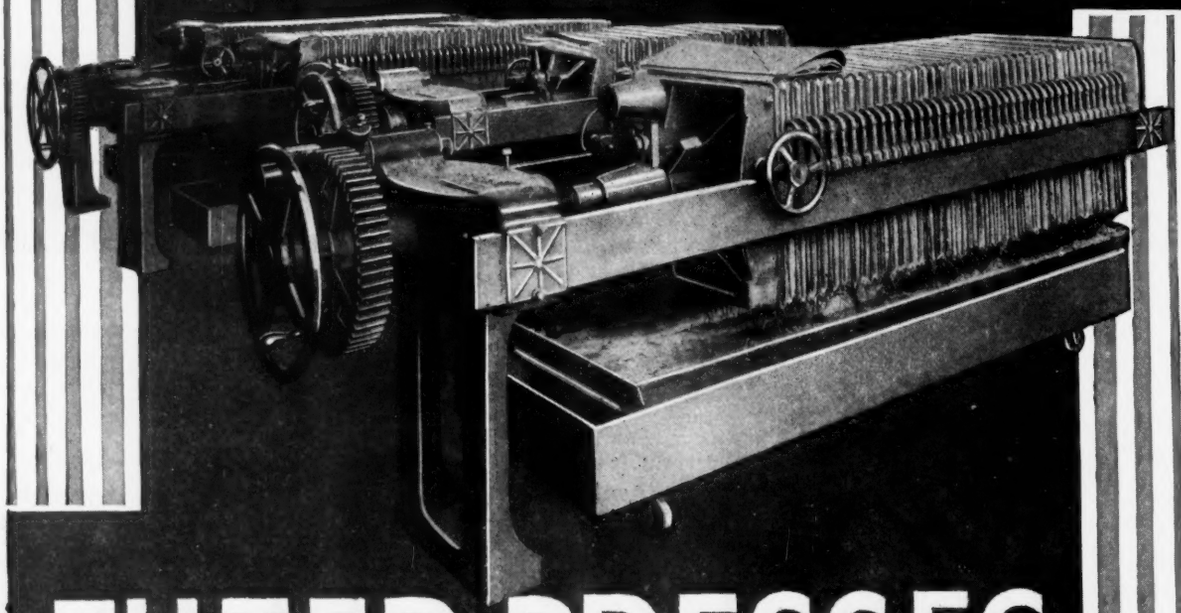
The protection of hard rubber is available for equipment of any size

Hard Rubber Pipe Linings

Perhaps a more interesting development is the practical lining of steel pipe and fittings with either hard or soft rubber. This enables the engineer to operate his system safely at the full pressure which the metal itself is built to withstand. Such linings are seamless and continuous, being carried out over to the flanged ends just within the bolt circle of the flanges. In this equipment the rubber is so firmly bonded to the metal that usual suction or discharge pressure will not loosen the lining. Hard rubber-lined steel pipe has been successfully used at temperatures up to 185° F. Standard types of gate valves with full inner rubber protection are now a regular item of such equipment available in a range of useful sizes.

Great progress has been made in the design of hard rubber lined pumps including one of the centrifugal type capable of delivering 200 gallons per minute yet having all parts in contact

SHRIVER



FILTER PRESSES

TO-DAY, it has become more essential than ever before, to secure the lowest possible production costs. In the chemical and chemical process industries, filtration costs are brought to the minimum with Shriver Filter Presses. In the design, the sturdy construction and the accurate application of the proper model and size of Shriver Filter Presses the means are provided to obtain efficient filtration at the lowest possible cost. Shriver filtration engineers are always at the service, without obligation of course, of those interested in filtration. Your inquiries are solicited.

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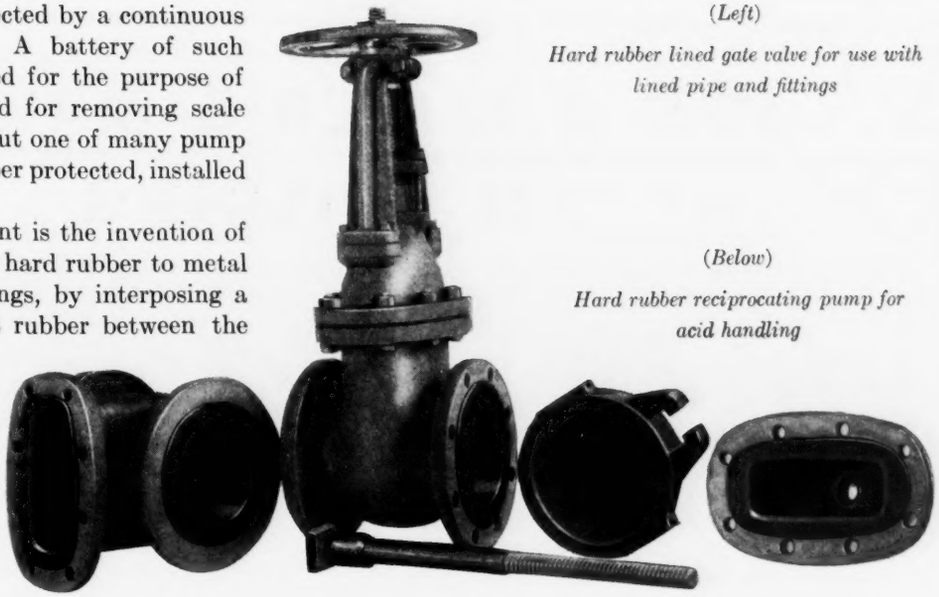
FILTER PRESSES FILTER CLOTH DIAPHRAGM PUMPS

with the solution fully protected by a continuous covering of hard rubber. A battery of such pumps was recently installed for the purpose of circulating hydrochloric acid for removing scale from boiler tubes. This is but one of many pump types of modern design, rubber protected, installed in industrial plants.

An interesting development is the invention of a special process of bonding hard rubber to metal for tank linings and coverings, by interposing a relatively thin layer of soft rubber between the metal and the hard rubber lining. Thus there is formed a resilient cushion which tenaciously adheres to metal and to hard rubber, forming a cushion which withstands considerable rough usage, even abuse, without danger of fracture. This is particularly valuable for the storage and transportation of corrosive chemicals under conditions where an ordinary hard rubber lining might fail. In such a bonded lining the flexible interlayer compensates for expansion and contraction under extremes of temperature. Tanks made by this method are in constant transit under all weather conditions without danger or damage.



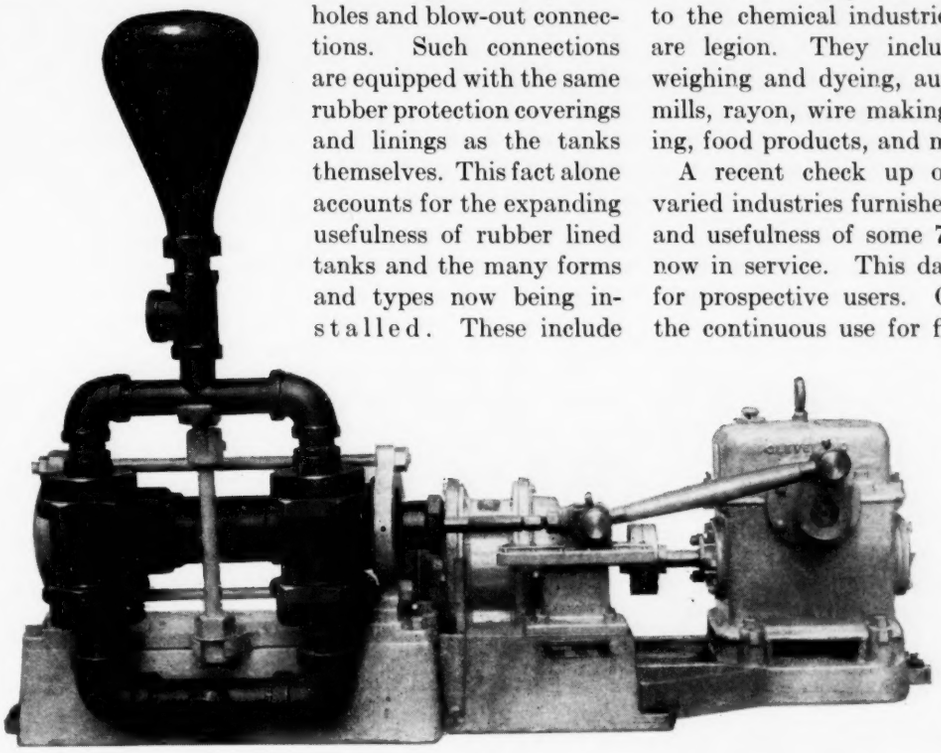
(Left)

Hard rubber lined gate valve for use with lined pipe and fittings

(Below)

Hard rubber reciprocating pump for acid handling

Any hard rubber lined tank may be fitted with the usual flanged outlets, manholes and blow-out connections. Such connections are equipped with the same rubber protection coverings and linings as the tanks themselves. This fact alone accounts for the expanding usefulness of rubber lined tanks and the many forms and types now being installed. These include blow cases, vacuum tanks, storage tanks, filtering tanks, delivery truck tanks as well as full sized tank cars for railway transportation.



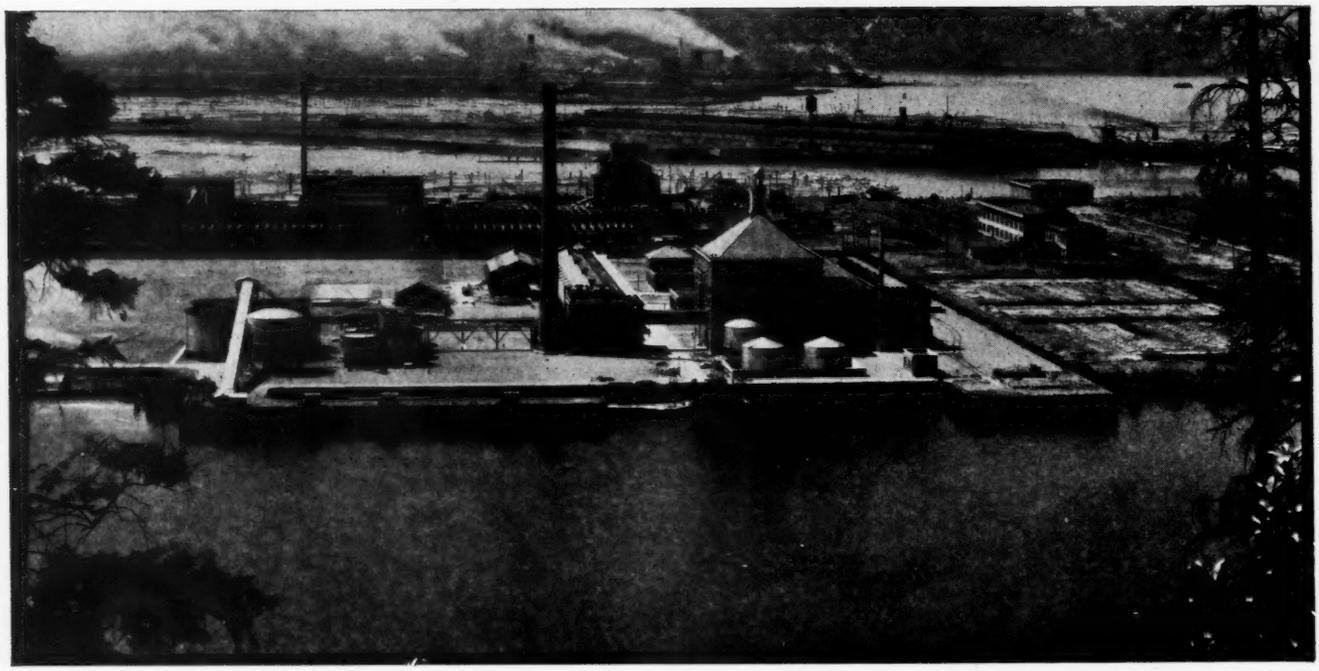
In electroplating hard rubber has been recently adopted for both plating and pickling operations. Hard rubber linings conserve current and prevent leakage from short-circuits as hard rubber is itself one of the most perfect electrical insulators known. In this field too, manufacturers are adopting hard rubber covered plating racks which do not receive the metal deposit thus conserving valuable metal and requiring materially less current for the work to be done. Savings in this respect represent a sum far exceeding the cost of such equipment.

Acid handling problems, of course, are not peculiar to the chemical industries. Specialized applications are legion. They include such industries as silk weighing and dyeing, automobile manufacture, steel mills, rayon, wire making, salt making, photo finishing, food products, and many others.

A recent check up of manufacturers in widely varied industries furnishes interesting data on the life and usefulness of some 709 hard rubber lined tanks now in service. This data has been made available for prospective users. One outstanding instance is the continuous use for five years with concentrated hydrochloric acid at boiling temperature with intermediate stages of ammonia and ammonium chloride without material disintergration. Many more years of useful service for this installation are confidently forecast by the user.

The remarkable resistance of hard rubber to corrosion is evidenced by the following solutions which this equipment will handle safely: hydrochloric acid, sulphuric acid, up to 50° Be., nitric acid, up to 16° Be., hydrobromic acid, sulphurous acid, phosphoric acid, up to 75%, formic acid, acetic acid, hydrofluosilicic acid, oxalic acid, chlorine solutions, sodium hydroxide, ammonium hydroxide,

IT'S A BUYER'S MARKET IN BUILDING



Large chemical plant in the Northwest, recently completed by The Austin Company for a well-known Eastern Manufacturer

Executives in the chemical industry who are trying to show a profit in a plant operating at two-thirds capacity . . . a set-up only capable of close profit margins when going full blast . . . are taking this opportunity to scrap "white elephant" facilities and build anew, for the present is the greatest buyer's market in building, except for a brief period in 1922, since the pre-war prices of 1916, fourteen years ago.

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potassium hydroxide, stannic chloride, ferric chloride, mercuric chloride, alum solutions, copper sulphate, ferric sulphate, nickel sulphate, zinc sulphate, sodium hypochlorite, sodium acid sulphate, sodium borate, sodium chloride sodium thiosulphate (hypo), sodium sulphide, zinc chloride, zinc sulphate.

In many process industries a lively interest is manifest in the possible application of hard rubber, non-corrosive handling equipment. Much valuable data from actual experience is already available to those who desire to investigate its use in solving their particular problems.

United States chemicals production increases in value from $816,000,000 in 1913 to $2,268,000,000 in 1927, a growth of 278 per cent, according to Index published by New York Trust Co. This compares with an increase of 220 per cent in world production. While in 1913 the United States accounted for 34 per cent of the world production, in 1927 its contribution had increased to approximately 43 per cent. In comparison, Germany, the next largest producer, was responsible for 24 per cent of the total in 1913, but only for 16 per cent in 1927. Similarly, Great Britain's share fell from 11 per cent in 1913 to 9.5 per cent in 1927 and that of France from 8.5 per cent to 6.8 per cent. In 1913 Germany and Great Britain together produced more chemicals than the United States, but by 1927 we had far out-distanced them and accounted for the equivalent of the production of the eight leading European countries combined.

Canadian creosote oil consumption in 1929 attains record figure of 10,000,000 gallons, of which 9,000,000 are estimated used in treating railroad ties. Domestic consumption increased 20 per cent over 1928 figure. United States receives all Canadian exports of creosote oil and supplies half of Canadian imports. Bulk of "carbolic" or heavy oil imported into Canada is reported to be creosote oil. Dominion Tar and Chemical Co., Ltd., controls about 90 per cent of Canadian output. Canadian exports fell slightly in 1929, from 1,150,766 to 1,025,223 gallons in 1928, due to domestic expansion and decreasing dependency of United States on foreign sources of supply.

Oil hydrogenation process proves commercially possible even under existing low prices in tests in first plant using process in United States, at Standard Oil of New Jersey plant, Bayway, N. J. Operation on a commercial scale has begun. Any quality of oil can be used as base in this process, and with slight change in plant, coal can be made base, and if necessary, other hydrocarbons. Process is said to lift average quality level of gasoline, kerosene, lubricating oil, fuel oil, Diesel oil and other principal petroleum products.

La Nitrogene starts operation of plant in France for direct production of calcium nitrate and nitro-phosphate by gas-oven arc process, according to report. Company expects to reduce costs through application of new discoveries made by Societe Azote Francais. Company has also begun developing electrochemical plant. Societe Chinique de la Grande-Paroisse will start operating new plant for production of synthetic ammonia by Claude process during year, at Grand-Quevilly, near Rouen.

Ethyl mercaptan, an organic sulfur compound, has been found to be a practical warning agent for detection of leaks in natural gas distribution systems, in investigations by United States Bureau of Mines. Warning agents of this kind be distinctly malodorous, and ethyl mercaptan amply fills the bill, its odor being characterized as a mixture of that of garlic, onions decayed cabbage, sewer gas, and hydrogen sulfide.

Beryllium minerals are widely searched for as result of publicity given recent research on its use in airplane construction.

Naval Stores Industry Seeks Cooperation

Members of the naval stores industry in conference during the N. P. O. & V. Association convention held in Toronto on October 16 petition the Pine Institute of America, Inc., for co-operation in solving several of the very pressing needs of the industry. The following extracts are taken from a letter drafted by a committee headed by H. J. Rolls of the Rolls Chemical Co., and sent to the Institute.

"At the Eighth Annual Meeting of Naval Stores representatives, it was unanimously decided that a Standing Committee on Turpentine Advertising should be appointed and directed to formulate and submit a plan and programme for co-operative advertising of turpentine by all Naval Stores interests. The following were named to serve on said advertising committee until their successors are appointed, namely: Ernest E. Holdman, C. F. Guignon, G. A. Wharry, Irving Post, J. A. Myers and N. S. Greensfelder, Chairman.

"Further, the committee was appointed with instructions to bring to the attention of the Pine Institute of America for their consideration and conference with leaders of the Naval Stores Industry the following crystalized thoughts expressed, namely:

"That the urgency of the present situation demands immediate action on a definite programme of an intensive educational and advertising camapign, directed primarily to the public at large and emphasizing the superlative merits of Turpentine, not alone in the manufacture of Paint and Varnishes but as a Thinner of Paints and Varnishes and for many other important manufacturing and household uses.

"It was generally recognized as essential that no time be lost in crystallizing the opinion of the industry along these lines, to stay the ever-increasing disintegration that is now taking place because of the apathy of producer and consumer alike as to the merits of Turpentine.

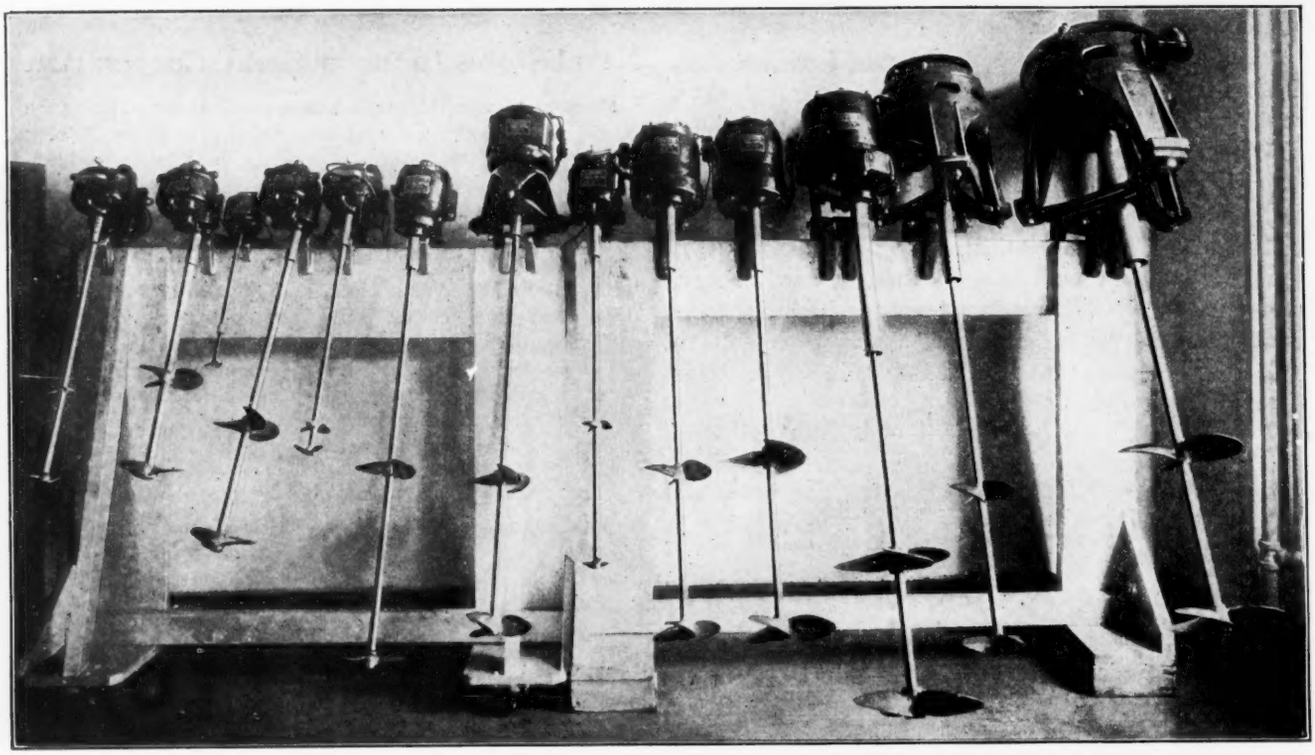
"It was also the consensus of the meeting that the efforts of the industry must be directed toward the adoption of modern and better methods of production and merchandising such as the following:

1. Selling Rosin by the pound instead of by the antiquated unit of 280 lbs. gross.
2. The simplification of the number of grades and the elimination of unnecessary grades.
3. The adoption of improved and uniform packages.
4. The need for more intensive research to continually improve Naval Stores products and develop new uses.
5. To recognize as an asset the national medium of distribution and to make returns to the distributor sufficiently remunerative to warrant his continued interest in sales and further promotion directed toward greater consumption, also the finding and developing of new markets and new uses. It appears that the industry has not realized the cost of selling and distributing its products with fair profit to those furnishing this service.

"Finally that annual meetings should be held in the South."

Ammonium sulfate imports into Japan are considerably less during second quarter of 1930 than during same period of 1929, due principally to heavy stocks on hand and to fall in price of oil cake, which at proper price levels replaces chemical fertilizers. Forty-four thousand fifty-two short tons of ammonium sulfate valued at $1,795,000 were imported into Kobe and Osaka during the second quarter of 1930, as compared with 65,196 tons valued at $3,361,000 during the similar period of the preceding year.

Egyptian fertilizer market expands yearly, and as soil is particularly deficient in nitrogen and phosphoric acid, sodium nitrate and superphophates are most popular fertilizers, calcium nitrate being also widely used, and small quantities of ammonium sulfate.



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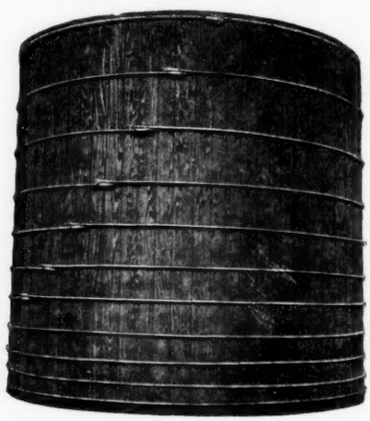

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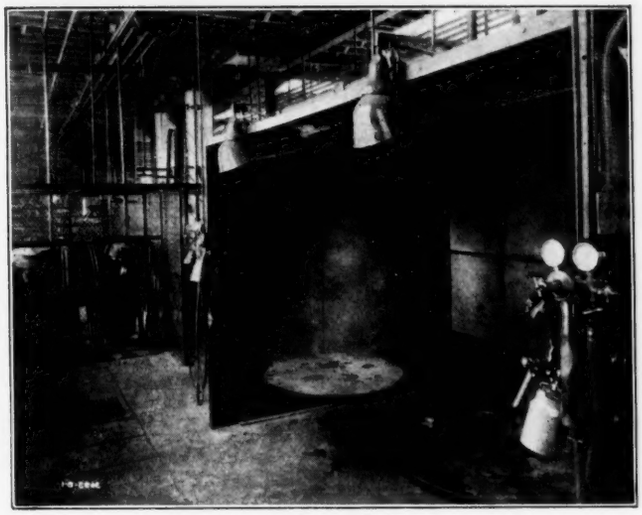
Fighting Fires in Chemicals



By
C. B. White
Chemist - Engineer
American LaFrance
and Foamite Corp.

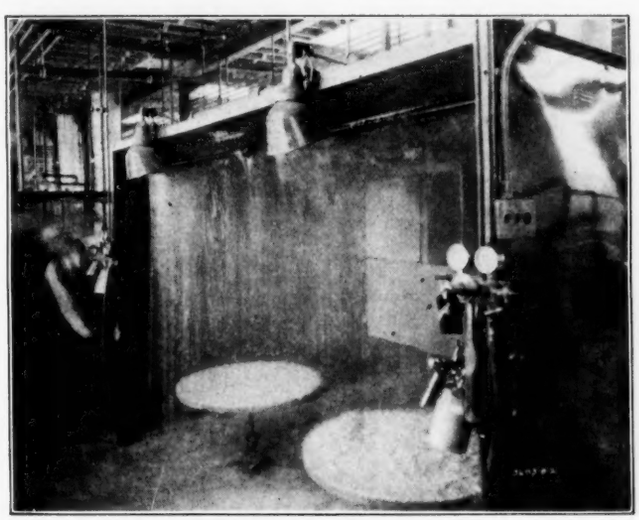
CHEMICALS. Chemicals. Chemicals. Everywhere we find them being used in rapidly increasing amounts and varieties. In addition to the strictly chemical industries almost every large manufacturing process requires their assistance.

To attempt a detailed discussion from a fire protection standpoint would be folly, for each plant has its different problems, different plant layouts, different processes and materials. Correct fire protection for the many varied and hazardous risks cannot be ready-made. More than equipment is needed. Recommendations for fire protection must be based upon careful investigation. Engineering, supported by extensive experience in fire protection, must be called into consultation. Realizing, therefore, that fire protection is a science in itself let us proceed to a well-known set of facts.

Fires differ. Methods of fighting them differ. Certain types of equipment which are effective in fighting one class of fire are worthless on some other classes. Water or ordinary soda-acid chemicals will extinguish fire in free burning material but on an oil fire they have no effect except possibly to stir up and fan the fire to greater proportions or cause the burning liquid, floating on top, to overflow and spread the fire to adjacent property.

For fires in gasoline, oils and similar inflammable liquids foam is the most efficient fire-fighting medium. Foam consists of millions of tiny tough bubbles containing carbon dioxide gas. Discharged on an oil fire it floats on the burning surface, forms an air-tight heat-resistive blanket and smothers the fire. Discharged on burning solids it clings in all positions and snuffs out the fire. It is also used to prevent the spread of fire when applied as an insulating coating over property adjacent to the fire.

Consequently, we must select the best type of equipment depending on the nature of the fire likely to occur. The several types for consideration are Soda-Acid and Foam, already mentioned, and Carbon Tetrachloride, Anti-Freeze and Carbon Dioxide gas types. Consideration must also be given to the selection of portable or stationary equipment; extinguishers, engines, generators or systems, manual, semi-automatic or automatic operation. Experienced engineers must work out the particular application of the equipment to the existing conditions of the risk.



Speed and complete isolation are the two essential factors in fire protection systems

Keeping in mind that no single type of fire-fighting equipment is a panacea for all fire protection ills, let us consider several cases.

Carbon bisulfide presents a very unusual fire protection problem. In fact, among the inflammable liquid chemicals used extensively in industry there is hardly a parallel. Carbon bisulfide can be ignited at a temperature as low as —20° F. and when heated to only 300° F. it ignites itself. It is a

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fire difficult to control. It burns with a light blue flame and the fire-fighter is often led to believe that he has extinguished the fire when as a matter of fact the almost invisible blue flames continue to burn stubbornly.

Fumes of carbon bisulfide are explosive and this is an additional serious hazard when the fire is located in a confined space. Burning carbon bisulfide gives off sulphur dioxide which makes it difficult for a fire fighter to approach unless he is equipped with a gas mask or adequate ventilation is present.

The interesting part about a carbon bisulfide fire is that if the burning liquid is in a container that is sufficiently deep to permit the addition of a fairly large amount of water, the fire can be extinguished. This is accomplished, not by the usual cooling effect of water or by dilution of the inflammable liquid, but because water is much lighter than carbon bisulfide, floats on top of the chemical, excludes the air and therefore smothers the fire. The water must be applied carefully, however, for there must be a minimum of churning or splashing. Such agitation tends to force some of the chemical to the top where it continues to burn. Consequently the water should be allowed to flow as quietly as possible into the burning material from a low pressure source.

Again, carbon bisulfide is deceptive. The fire fighter may be misled into thinking that he has applied a sufficient depth of water when actually, surface tension has brought it into a shape resembling the lower half of an hour-glass, leaving a ring of water at the top with a portion of the chemical still exposed and burning in the center.

Foam as An Extinguisher

Foam has been used to advantage on carbon bisulfide fires and it has been found that the foam greatly reduced the severity of the fire but in this unusual case it was not as positive a blanketing agent as water. With a fire of carbon bisulfide on a floor or not in a deep container, however, foam is the better extinguishing agent for it blankets and clings.

Now, let us consider another extensively used class of chemicals—solvents such as acetone, alcohols, amyl acetate and ether. All of these have a tendency to break down foam and consequently this extinguishing agent is not recommended for this class of risk. Of course, if a large quantity of foam were applied at one time it would snuff out the fire but there is another medium which is positive in action on this class of fire and that is carbon dioxide gas. This valuable fire-fighting gas is stored under pressure in a liquid state. To extinguish fire the liquid is released through valves, piping and nozzles where it expands into a gas. On an average when atmosphere contains 17% carbon dioxide fire cannot live in it. (This percentage, however, varies with different classes of fires.) Being virtually moisture free, colorless, odorless, tasteless and non-toxic it does no damage. Being a gas it is three-dimensional in its action, penetrating every crack and corner. It does its work in seconds. Some systems of carbon dioxide protection operate manually, some automatically and some both manually and automatically.

Carbon dioxide being a gas at ordinary temperature and pressure it is necessary to confine it as much as possible to the immediate vicinity of the fire in order to get the greatest possible concentration of the extinguishing medium. As a result, fire protection engineers devise means of automatically closing windows, ventilating flues, stopping fans, motors and the like. Again, we have an application of *engineering service* and further proof that *correct* fire protection is a broader field than the *mere production and sale* of the equipment utilized.

Let us consider one more chemical fire risk—pyroxylin plastics. A list of manufacturers using pyroxylin plastics would read like a register of American business. In many different forms this inflammable material is being stored and used for a variety of purposes.

Pyroxylin plastic is nitrocellulose dissolved in a suitable solvent. The degree in which the varieties of this material are fire hazards depends upon the thoroughness with which the nitrated cotton is washed, proportion of solvent added and degree of heat applied. Inert compounds are also used and make the material less easily inflammable.

Where pyroxylin lacquers are used spray booths, mixing and storage rooms should be of non-combustible material and preferably in a detached building, well ventilated. Motors, belts and bearings should not be located in or near spray booths. Soda-acid extinguishers and water can extinguish fire in the dry "feathery" accumulation on the walls of spray booths but are not effective where the lacquer is in solution. Consequently a sufficient number of foam type extinguishers should always be available. Foam type 40-gallon engines should be provided wherever larger quantities of this inflammable liquid is used or stored. In many plants throughout the country dip tanks and drain boards are protected with automatic foam systems.

From this glimpse at the field of protection against fire in chemicals, it can be readily understood that fire risks are numerous and different, and that adequate protection of the correct type is to be obtained only after careful consideration, supported by practical knowledge, experience and engineering skill.

Printing inks shipments by manufacturers in 1929 increased 16.7 per cent over figure for 1927, from $34,617,898 to $40,385,924, with 141 manufacturers reporting in 1929 as against 123 in 19.27

Bureau of Mines tests of cuttings from well drilled for oil in Texas-New Mexico salt basin find more than 1.5 per cent potash in 55 wells in New Mexico and 8 wells in Texas.

National Society for Prevention of Blindness Publication 62 reports experience of 583 companies in saving eyes of workers.

ETHER

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A Dry Product of Exceptional Purity

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Free from water and alcohol

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For solvent purposes or the synthesis of high grade organic chemicals

PROPERTIES—A volatile, water-white liquid having a specific gravity at 20/20° C. of about 0.7145. It is neutral to litmus, leaves no residue or foreign odor upon evaporation and contains no aldehyde or peroxide. Being free from water and alcohol, it is practically 100% pure.

SAMPLES and unusually attractive prices, which should help develop new uses for this high grade ether, will be furnished promptly on request.

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Organic Chemical Section, Wilmington, Delaware

Organic Chemicals

Chemical Facts and Figures

Dr. Herbert Dow Dies

Internationally Known Chemist—Founder and President Dow Chemical—Succeeded in Presidency by Son, Willard H. Dow.

Dr. Herbert H. Dow, internationally known chemist and president, Dow Chemical Co., dies at Rochester, Minn., October 15, aged 64. After his graduation from Case School of Applied Science, Dr. Dow went to Midland, Mich. to experiment with lithium and bromine. Finding a rich deposit of bromine, he established a laboratory, perfected an electrolytic cell for the extraction of bromine and through its development and application to this and other chemicals revolutionized the industry. He established Dow Chemical Co. in 1897, becoming world's largest manufacturer of bromine and allied products. He held more than 100 patents for processes and equipment. He held degrees from the University of Michigan (honorary M. E.) and Case School (honorary doctor of engineering) and received the Perkin medal for 1930. He was also one of the five men nominated by the readers of CHEMICAL MARKETS for the medal to be presented to the man who has done most for the chemical industry. He formerly was a member of the advisory committee of Council of National Defense and Chemical Alliances, Inc.: and of Board of Public Works and Board of Education of Midland: American Association for the advancement of Science, American Chemical Society, American Electrochemical Society, American Institute of Chemical Engineers, Franklin Institute, Society of Chemical Industry of Great Britain.

Willard H. Dow, assistant general manager and assistant treasurer, Dow Chemical Co., and son of its founder, Dr. Herbert H. Dow, is elected president of Dow Chemical by unanimous vote. Mr. Dow was born in Midland, Mich., Jan. 4, 1897 and graduated from the Midland High School, and the University of Michigan (B. Sc.). Before entering the university he had his first job in the Dow laboratories. After graduation he went to work in the chloracetic plant, then he went to the indigo plant and later to the aspirin plant. He was elected a director of the company in 1921. He has been his father's chief assistant since 1925 when he became assistant general manager and assistant treasurer.

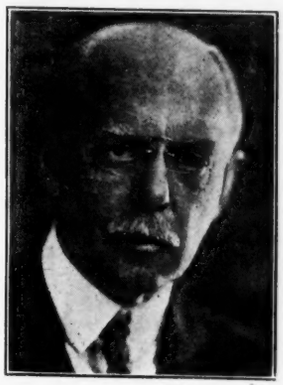
Willard H. Dow

Sixteen industrial and professional leaders of organizations using alcohol for commercial and scientific purposes hold first meeting in Philadelphia Oct. 3 toward preparing plans for cooperation in administration of permissive features of prohibition act. Henry S. Chatfield, president, Mational Paint, Oil and Varnish Association, is elected president of group; A. Homer Smith, Sharpe & Dohme, Philadelphia drug manufacturers, vice-president; and Dr. Harrison E. Howe, executive secretary.

Industrial-Farm Products Division, Bureau of Chemistry and Soils, makes test of chrome-tanned leathers for bookbinding as compared with vegetable-tanned leathers. Sixty volumes of "Chemical Abstracts", one of most widely used sets of all scientific works, bound in leathers treated with five chrome tannages and five leather tannages, and four leather dressings for preserving the bindings, have been placed in the library of the bureau.

Arthur D. Little Awarded Perkin Medal

Arthur D. Little, chemical engineer and president, Arthur D. Little, Inc., Cambridge, Mass., is awarded Perkin medal for 1931 by American Section of the Society of Chemical Industry. Dr. Little was born in Boston sixty-six years ago, and graduated from Massachusetts Institute of Technology. He holds honorary degrees from the University of Pittsburgh Tufts College, and the University of Manchester, England. He is a member of several scientific societies and a fellow of the American Academy of Arts and Sciences. He also is former president of the American Institute of Chemical Engineers, the American Chemical Society, and the Society of Chemical Industry of Great Britain. His achievements include important work in the fields of artificial silk and petroleum. He was chemical engineer and superintendent of the first mill in the country to manufacture sulphate wood pulp. He is a member of the board of Consulting Editors, CHEMICAL MARKETS. The award which is made on the basis of a lifetime of achievement will be presented next Jan. 9 at a joint meeting of the five societies.



Arthur D. Little

Canadian Industries Ltd. plans to considerably increase its production following imposition of 10 per cent duty on fertilizer imports. New superphosphate plant at Hamilton, Ont. will be erected to operate in connection with dry mixing plant, and new sulfuric acid constructed at Hamilton. Ontario alone last year imported 45,000 tons of fertilizer, and Canadian Industries expects to be able to supply this market at present prices. The company has also taken over a plant at Halifax, N. S. to provide fertilizers for Prince Edward Island, which last year imported in large quantities. Canadian Industries, Ltd., opens new fertilizer plant at Beloeil for superphosphates manufacture, inaugurating fertilizer manufacture in province of Quebec. Only manufacture of superphosphate in Canada heretofore has been by Triangle Chemical Plant of Canadian Industries, Ltd., at New Westminister, B. C. Another superphosphate plant is under construction at Hamilton, Ont. by Triangle Chemical.

Salesmen's Association of the American Chemical Industry holds first fall meeting at Drug and Chemical Club, New York, on the evening of Thursday, November 13. Business to be transacted includes election of nominating committee to name the officers for 1931. Following dinner, an illustrated talk on chemicals and chemical warfare will be given.

Coming Events

Association for the Advancement of Science, Cleveland, Dec. 29.
American Institute of Chemical Engineers, New Orleans, Dec. 8-10.
American Petroleum Institute, Chicago, Nov. 10-13.
American Oil Chemists Society, Chicago, Nov. 13-14.
International Acetylene Association, Congress Hotel, Nov. 12-14.
Oil Traders Association, New York, Hotel Roosevelt, Nov. 12.

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Be particular about the raw materials you select. Choose *Natural* bichromates and chrome products to have a winning streak on every play.

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Bichromate of Soda (Granular)

Bichromate of Potash (Crystals)

Bichromate of Potash (Granular)

Bichromate of Potash (Precipitated)

Sulphate of Soda

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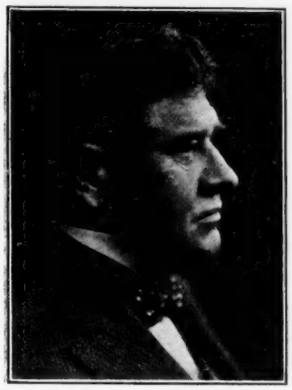
BICHROMATES

Obituary

Dr. Ellwood Hendrick

Dr. Ellwood Hendrick, curator, Chandler Chemical Museum, Columbia University, dies October 29, aged 68. He was born in Albany, N. Y., December 19, 1861, the son of James Hendrick, a pioneer in American dye industry. After studying at University of Zurich, Switzerland, he became manager of Albany Aniline and Chemical Works. In 1884 he entered the fire insurance business and later the stock brokerage business. From 1917 to 1922 he was with Arthur D. Little, Inc., during which time he received an honorary degree of Doctor of Science from Franklin and Marshall College. At the same time he was consulting editor of Chemical and Metallurgical Engineering. He was appointed curator Chandler Museum, in 1924. He was a trustee and member of executive committee of the Research Corp. and a member of American Chemical Society, Society of Chemical Industry, Franklin Institute and La Societe de Chimie Industrielle (president of American section, 1922-23). He was the author of many books and articles on scientific and philosophical subjects.



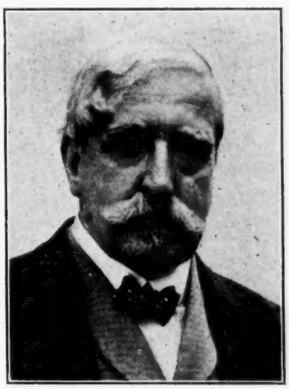
Dr. Ellwood Hendrick

Lord Brotherton

Sir Edward Allen Brotherton, pioneer in British chemical industry, dies October 21, aged 74; His factories are in Glasgow Leeds, and other cities.

He was first to bear the title of Baron Brotherton of Wakefield, which was created last year.

He had represented Wakefield in Parliament from 1902 to 1910 and from 1918 to 1922, and had been mayor of Wakefield and mayor of Leeds. He left no heir.



Baron Brotherton

George S. Davis, one of the founders, Parke, Davis & Co., pharmaceutical manufacturers, Detroit, dies October 1, aged 85. He severed his connection with Parke, Davis many years ago and was subsequently president and treasurer, Continental Varnish Company.

Henry Devereux Whiton, president and treasurer, Union Sulphur Co., dies October 31, aged 59. He had been president of Union Sulphur since 1914.

Carl F. Bierbauer, superintendent, Hercules Powder Co. explosives plant, Hercules, Cal., dies October 28, aged 51.

George R. Merrell, president and treasurer, Kesson-Merrel Drug Co., dies aged sixty.

Louis B. Fortner, head of L. B. Fortner Co., dyestuff manufacturers, Philadelphia, dies October 14, aged 71.

Charles Harrison Goddard, former president, American Druggists' Syndicate, dies at sea.

Personal and Personnel

H. H. Hollesen, N. V. Potash Export My., is appointed to co-management with R. Gide, in place of Robert Kunze, who died in Germany in July, 1929. In 1920 he came to America, specializing in the handling of crude and refined chemicals, oils, etc., and shortly afterward organized the firm of H. Hollesen, Inc., which acted as agent of the various enterprises of the late Hugo Stinnes. He has been associated with the potash interests abroad for some months.

Col. William C. Procter is elected chairman of the board, Procter & Gamble, retiring as president and being succeeded by R. R. Deupree, vice-president and general manager. Colonel Procter is first to hold office of chairman, created at special meeting of stockholders in July, 1929.

W. C. Mills, Grasselli Chemical Co. division sales manager in charge of Eastern branches, is transferred from New York to main offices of company in Cleveland, and will supervise from there company's branch sales offices throughout country.

G. C. Manson, 853 Washington st., Buffalo, is appointed sales representative of Pennsylvania Sugar Co. and Franco American Chemical Works, handling sale and distribution of Quaker brand industrial alcohol and industrial chemicals.

Lord Melchett resigns as chairman of the council and of the political committee of the Jewish Agency for Palestine as protest against British Government's declaration of future policy in Palestine.

G. Lee Camp, formerly sales manager, Dow Chemical Co., and since July 7, 1930, assistant to the President, Monsanto Chemical Works, St. Louis, is elected a vice-president of company.

Robert Cramer, formerly chief engineer, City of Milwaukee, opens consulting engineering office specializing in sewage disposal plants and industrial waste disposal plants.

Alfred Schmidt, for many years with sales department, Mutual Chemical Co. of America, becomes connected with National Oil & Supply Co., Newark, N. J.

R. L. Agassiz, chairman of the board, Calumet & Hecla Consolidated Copper Co., is reelected president, Copper and Brass Research Association.

Dr. Fritz Haber, noted German industrial chemist, credits Germany's industrial recovery after the war to close relation of science and business.

Dr. John C. Krantz, Jr., is elected chief of Bureau of Chemistry, Maryland Board of Health, to succeed late Dr. Wyatt W. Randall.

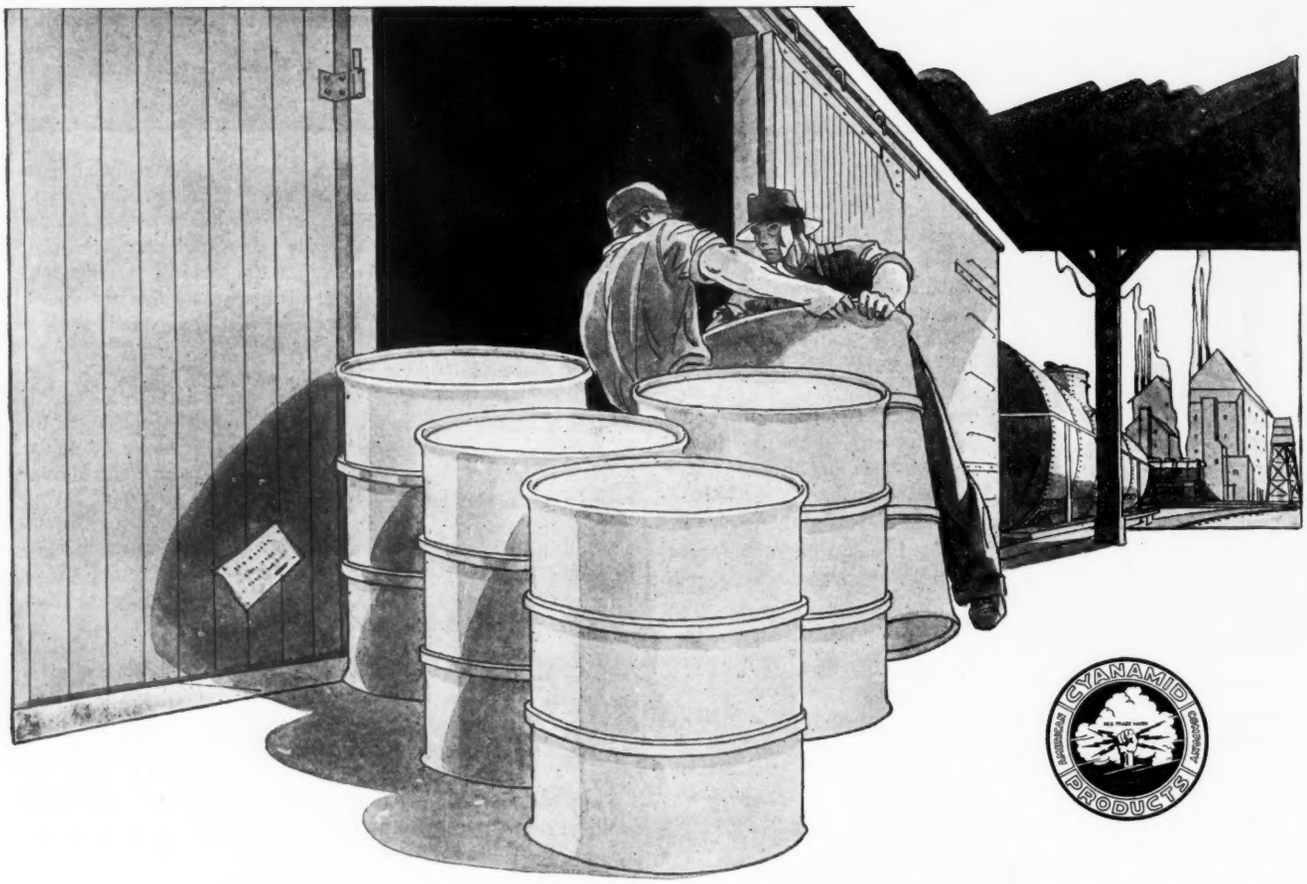
Dr. Walter S. Landis, vice-president, American Cyanamid, sails for Europe October 25, for a stay of four or five weeks.

Corydon Grafton resigns from du Pont Co. Buffalo plant to take a position with Foster Dee Snell, consulting chemist.

K. E. Prickett, Vick Chemical Co., New York, goes abroad to be gone two years.

Mr. and Mrs. Arthur Merz sail for Europe for two months' stay.

Lord Melchett celebrates sixty-second birthday, October 23.



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Aero Brand Aqua Ammonia is uniform because it is produced from three easily controlled raw materials, limestone, coke and air.

Frequent inspections during storage—and packages worthy of the product—assure your receiving Aero Brand Aqua Ammonia just as uniform as when first produced.

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A partial list of our Industrial Chemicals:

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Ammonium Chloride
Carbonate of Potash
Case Hardening Compounds
Chromic Acid
Copper Sulphate
Cresylic Acid
Dicyandiamid
Diorthotolylguanidine
Diphenylguanidine
Ethyl Lactate
Ethyl Oxybutyrate
Formic Acid
Hydrocyanic Acid (Liquid)
Nitrocellulose
Red Prussiate of Potash
Rezyls
Rezyl Balsams
Sodium Cyanide
Sodium Phosphates (Di and Tri)
Sulphocyanides (Thiocyanates)
Sulphur
Sulphuric Acid
Teglac
Thiourea
Urea
Yellow Prussiate of Potash
Yellow Prussiate of Soda
Zinc Cyanide

Industrial Chemicals Division

American Cyanamid Company

535 Fifth Avenue New York

John W. Boyer Leaves Monsanto

John W. Boyer

John W. Boyer tenders resignation as Vice-president, Monsanto Chemical Works, effective November first.

After graduating from Lehigh University in 1907, he went to work in the Portland Cement plant. Later he was with the Solvay Process Co. in charge of developing by-products. From 1922 to 1928 he was with Mathieson Alkali Works, first as assistant sales manager, then as sales manager. He has been with Monsanto since 1928.

Dr. Charles H. Herty, former president, American Chemical Society, discovers method for making white newsprint paper from slash pine, and presents results to public without reservations in hope it will be used by South. Southern pine has long been used to make yellow paper.

Charles H. Stone, Charlotte, N. C., sells his dyestuff division to Calco Chemical Co., Bound Brook, N. J. and becomes associated with latter company in management of its southern sales offices. He continues his heavy chemical business under his own name.

Dr. A. R. Hitch, Gillican-Chipley Co., is transferred from Brunswick, Ga., to Savannah, where he will have charge of all technical work of company and also be manager of Pineland Products Co., formerly A. S. Carr Co.

Richard Katz, Jr., formerly sales manager, A. B. Ansbacher & Co., New York, is appointed special sales representative in Eastern territory for Kentucky Color & Chemical Co., manufacturer of dry colors, Louisville.

Chilean nitrate interests representatives and Chilean government representatives will confer with New York financial interests in New York late in November on plans for financing new nitrate cartel in Chile.

Hugh Allan Galt, vice-president and general manager, Columbia Chemical Division, Pittsburgh Plate Glass Co., Barbeton, Ohio, leaves on a four weeks' business trip to Europe, October 17.

S. L. Baldwin joins sales department George Chemical Co. Mr. Baldwin was connected with Parsons & Petitt for many years and previous to this was with Peters, White.

Dr. M. Kerbosch, director, government cinchona estate and experimental station, Java, lectures on cinchona industry of Java at Commodore Hotel, Nov. 6.

Dr. F. C. Gerritsen, Agricultural Experiment Station, Groningen, works out bacteriological process for preparation of butyl alcohol and acetone from potato flour.

Dr. L. Baekeland recounts work of famous Belgians in recent history, at presentation of a Belgian library to New York University on October 16.

William Lehmann, N. V. Potash Co., is transferred from Atlanta office to Chicago office.

Dr. A. J. Kraus perfects antoxylin, cleaner for preparing metal surface for painting.

News of the Companies

United Carbon Co. rubber laboratory, Charleston, W. Va., is visited by party of Goodyear Tire & Rubber Co. chemists. Party included Dr. R. P. Dinsmore, chief chemist, G. K. Henshaw, chief compounder, Dr. L. B. Sebrell, chief of research department, J. P. Maider, head of materials testing department, Mark Laibe, purchasing department, William Stephens, factory superintendent, H. A. Endres, research department, and F. F. Myers of Akron.

Directors chosen for Chilean nitrate combine, Compania Salitrera, are said to be Pablo Raminez, Rodolfo Jaramillo, Ricardo Salas and Ricardo Ayalo representing the government and Alfred Houston, Carlos Castro, Maximo Grizar, Jorge Vidal, Jose Rios, Enrique Valenzuela, Moses Astoreca and Joaquin Irrarrazaval representing industry.

Suit of Arnold, Hoffmann & Co., Providence, R. I., against Mathieson Alkali Works of Virginia, growing out of contract to dispose of bleaching powder, caustic soda, soda ash and liquid chlorine, and a counter action by Mathieson against Arnold, Hoffmann are settled in Rederal Court in Providence. Terms were not made public.

Mallinckrodt Chemical Works of Canada Ltd., of Toronto, distributing branch of Mallinckrodt Chemical Company of St. Louis begins manufacturing for export as well as domestic trade. B. B. Murray is manager of the branch.

Chicago Drug and Chemical Association holds meeting at Hamilton Club, October 30, with Joseph Nielson, assistant director, Employers Association of Chicago, speaking on "The Price of Racketeering."

Glyco Products Co., Inc. announces trihydroxyethylamine linoleate for use in handling essential, mineral and vegetable oils in semi-solid form, and emulsone, a new vegetable gum, used for emulsifying oils.

Naval stores marketing association with co-operative membership in five Southern states is organized and will absorb naval stores marketing corporation. J. B. Davis, Albany, Ga., is president.

Swann Research, Inc., Birmingham, Ala., is awarded patent on treatment of phosphoric acid. Naugatuck Chemical Co., of Connecticut, is awarded patent covering new rubber vulcanizing process.

Alsop Engineering Corp. markets new low-priced filter which supplies large quantity of water without clogging up and is easily cleaned.

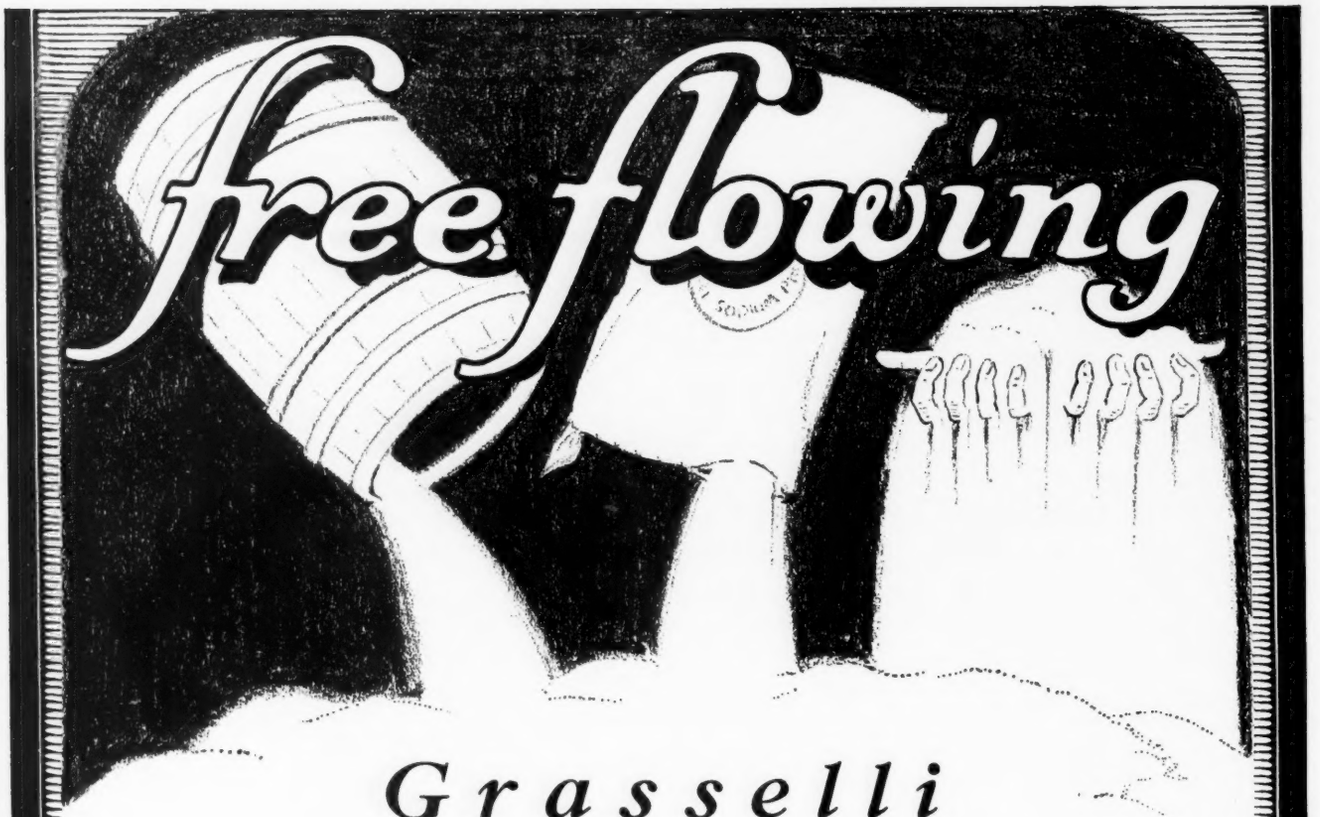
Stauffer Chemical Co. expands employees' group insurance program to include health and non-occupational accident insurance.

Kuttroff, Pickhardt & Co. business is dissolved October 15. Affairs are being liquidated.

Alum plant at Badin, N. C., is forced to close temporarily on account of water shortage.

Duval Texas Sulphur Co. rapidly expands operations at Laredo, Texas.

National Lead Co. develops new wall primer for use on white lead jobs.



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TRI-SODIUM PHOSPHATE

As our process permits Grasselli T. S. P. to *cure*, it is Free Flowing.

Non-Sifting Packages

Shipped to you in tongue-grooved barrels with paper liner—no loss either in transit or storage. Also comes in kegs and bags. Grades—fine, globular, medium and coarse.

Let us figure on your T. S. P. requirements. If you are in a hurry, call up our nearest branch.

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A Standard Held High for 91 Years

Columbian Carbon Co.'s estimate of output for 1930 shows an increase in gasoline and natural gas but a decrease in carbon black and other pigments from 1929. Its gasoline output is placed at 45,000,000 gallons this year, against 26,179,539 gallons in 1929. Production of natural gas is estimated at 49,000,000,000 cubic feet, with sales of 32,000,000,000 cubic feet, in comparison with 47,831,160,000 cubic feet and 26,934,903,000 cubic feet, respectively, last year, according to *Wall Street Journal.*

National Fertilizer Association holds sixth annual southern convention in Atlanta, Ga., Nov. 10-12. Among speakers will be F. B. Nichols, managing editor Capper Farm Press; Charles Brand, executive secretary and treasurer of association, Eugene R. Black, governor, Federal Reserve Bank, Atlanta, and Dr. Bradford A. Knapp, president, Alabama Polytechnic Institute.

Columbia Gas & Electric Corp. purchases control of American Fuel & Power Co. controlling Inland Gas Co. and Kentucky Fuel Gas Corp. from American Utilities and General Corp. With this purchase Columbia Gas & Electric Corp. obtains the rights of way for pipe line to Detroit and applications for natural gas franchises in Detroit.

Fifteen coal-tar dyes are legalized by government Food and Drug Administration for use in foods to replace natural colors altered or lost in manufacturing. Pure, non-toxic dyes only, no more harmful than table salt, may be used, and they must not be used to conceal damage or inferiority.

Mont-Cenis Nitrogen Fertilizer plant, recently acquired by I. G. Farbenindustrie, will probably be closed during next months, according to reports its quota most likely being doled out among other nitrogen fertilizer producers or given to other I. G Farben units.

Lavino Furnace Co., Richmond, Va., opens Reusens blast furnace for making ferro-manganese, closed for nearly a year, and works double shift. Company also builds chemical plant operating with small force.

Strike of fertilizer buyers is mentioned as possibility by Commissioner of Agriculture J. C. Bolton, Mississippi, unless fertilizer prices are reduced in conformity with present low price of cotton.

Chemists of U. S. Dept. of Agriculture discover organism that gives large yields of kojic acid when grown on corn sugar solutions. New compound has industrial possibilities.

Liberty Explosives Corp. new plant, Connellsville, Pa., under construction for past several months is ready for operation within about middle of November.

Austin Co., Cleveland received $300,000 contract involving new construction, additions and rebuilding for Inland Empire Paper Co. of Millwood, Wash.

Ontario Radium Corp. is organized to develop uranium oxide ore deposit in Haliburton County, Ont., expecting to begin operation in about six months.

Commercial Solvents Corp. resumes full-time operation at Peoria plant Nov. 1, and increases operations.

American Society for Testing Materials publishes specifications and methods of test for textile materials, 1930.

Electro Metallurgical Co. awards contract for construction of several new buildings at Boncar, W. Va.

New use of coal as filter in dye industry is described by Anthracite Institute.

Shawinigan Chemicals, Ltd., Toronto, is said to be hard hit by building of American Solvents' new acetic plant at Peoria, Ill., which will begin early in year producing initial 5,000 tons, to be increased to final capacity of 15,000 tons. During past year, Canada exported to United States 30,000 tons of this chemical essential in manufacturing artificial silks, and whole amount was made by Shawinigan.

Formation of European subsidiary of Standard-I. G. Co., to license patents and rights in oil hydrogenation processes on continent is reported. Leading oil companies of England, France, and Southern Europe are expected to take stock in proposed company, Germany patents being reserved for I. G.

European cellulose producers agree to curtail sulfite pulp production 15 per cent as of Oct. 1, making reduction of 300,000 tons from countries concerned, Norway, Sweden, Finland, Germany, Austria and Czecho-Slovakia.

Handy & Harmon, New York, issue bulletin pointing out possibilities of using silver or its alloys for equipment that must withstand certain kinds of corrosion, and advantages of using it at present low price.

International Nickel Co., completing expansion program and mine development and increasing capacity beyond present requirements, dismisses 500-600 employees in Sudbury district, Montreal.

United Carbon Co. expands acreage in eastern Kentucky fields, now holding more than 90,000 acres. Management believes company has bright future in natural gas industry.

French synthetic camphor production proves successful despite low price of product, is report at recent annual meeting of Societe Alsacienne de Produits Chimiques.

New alcohol regulations effective date is postponed, probably to January 1, pending completion of recommendations and publication of new regulations.

Cottonseed investigating commission ends hearings at Raleigh, N.C., Nov. 2, and convenes again in Columbia, S.C,. Nov. 10 to continue investigations.

Eastern Silica & Chemical Co. glass sand plant, Winchester, Va., is destroyed, estimated loss $100,000, by fire believed of incendiary origin.

Upjohn Co., Kalamazoo, Mich., chemical products manufacturer, begins work on new branch plant at Memphis, Tenn., to cost over $40,000.

Calumet & Arizona copper output for August is 7,516,000 pounds against 7,534,000 in July and 10,525,420 pounds in August, 1929.

Davison Chemical Co., Baltimore, approves plans for laboratory addition to fertilizer plant, to cost about $24,000.

Ernest Zobel Co., Brooklyn, N. Y., plans rebuilding portion of plant recently destroyed by fire, at cost of over $100,000.

International Acetylene Association holds 31st annual convention at Congress Hotel, Chicago, Nov. 12-14.

Soluble and liquid laundry bluing sales in United States in 1929 total $1,343,000, according to Bureau of Census.

Prest-O-Lite Co., Inc. purchases seven-acre factory site in clearing industrial district, Chicago.

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Stauffer Chemical Company and Subsidiaries

PRODUCTS		PRODUCTS
Acid, Muriatic	Stauffer Chemical Co. of Indiana.	Copperas
Acid, Nitric	Stauffer Chemical Co. of Texas.	Cream of Tartar
Acid, Sulphuric	Wheeler, Reynolds and Stauffer.	Fire Extinguishing Fluid
Barium Sulphate	San Francisco Sulphur Co.	Potassium Nitrate
Borax	American Cream Tartar Co.	Sodium Nitrate
Boric Acid, U. S. P.	Niagara Smelting Corporation.	Sulphur Chloride
Carbon Bisulphide	Borax Union, Inc.	Sulphur
Carbon Tetrachloride	Compagnie Europeene de Traitement des Minerais.	Tartaric Acid
Caustic Soda, Solid	Suddeutsche Chemische Werke.	Titanium Tetrachloride.
	Compania Azufrera del Noroeste de Espana.	

American Glue Co. of Boston, United States Glue Co. of Milwaukee and Peter Cooper Glue Factory, Towanda, N. Y., merge, bringing into alliance 65 per cent of hide glue production of United States. Peter Cooper Corp., holding company of group, has capitalization of $7,500,000, with 300,000 common shares. Approximate value of combined production of companies is $78,000,000 yearly.

British Acetate Silk Corp. reconstruction plans involve liquidation of present organization and formation of new company to take over business, offering present stockholders interest in new concern. Company would push acetate production, leaving viscose until market is satisfactory.

E. B. Eddy Co., Ltd., Hull, Quebec, erects modern filtration and bleaching plant on site of present sulfite mill at cost of $1,800,000 as initial step in scheme for replacing present buildings at cost of several millions.

Pittsburgh Plate Glass Co. and American Cyanamid combine for development of soda ash and caustic soda production jointly, planning erection of new plant on tidewater in South near raw material sources.

National Carbon Co. enters lubrication field by beginning November 1 to distribute and sell entire "Gredag" lubricant line of Acheson Graphite Corp. through Carbon Sales Division.

Sunland Sulphur Co., Inc., constructs $60,000 dusting sulfur mill at Fresno, Cal. Company plans construction of an agricultural chemicals plant for early next year.

Pfaudler Co. and American Tank Car Corp. form company to be known as General American-Pfaudler Corp. of Delaware, to handle railway refrigerator tank cars.

Advance Solvents & Chemical Co., Inc., is organized by Col. Herman A. Metz to deal in heavy chemicals and related products, with A. L. Mullaly in charge.

Container Corp. of America, Circleville, Ohio, sustains fire loss of more than $100,000. Company has perfected colored shipping case with display value.

I. G. Farbenindustrie erects new building to house administrative offices and sales departments, at cost of about 20,000,000 reichsmarks.

Canadian Celanese Ltd. adopts expansion program involving expenditure of over $1,000,000, as result of increased tariff protection.

American Cyanamid Co. begins manufacture of cytro-hlumus, new fertilizer converted from waste products of citrus canning.

German nitrogen syndicate extends activities to nitrogen chemical for industrial purposes as well as fertilizer products.

Seneca Copper confines underground work to development, continuing working schedule at five days a week.

Koninklikje Nederlandische Zoutindustrie, Borkelo, Holland, erects factory for production of salt products.

Archer-Daniels-Midland Co. reports largest volume of business for any month of year in September.

Hopkins Fertilizer Company, New Albany, Ind., factory is completely destroyed by fire Oct. 3.

Chemical and allied industries of Japan are listed in compilation being issued in Japan.

American Association of Textile Chemists and Colorists, Piedmont Section, meets in Charlotte, N. C., October 20. Speakers include: Robert Lassiter, Charlotte, N. C., "Business Conditions in the Textile Industry"; Robert Robertson, National Aniline & Chemical Co., New York, "Dyeing and Finishing Hosiery"; and E. P. Davidson, Charlotte branch du Pont, "Dyeing of Sulfur Colors."

Yale chemists and chemical engineers form Yale Chemical Association at New Haven, September 27. Officers elected are C. O. Johns, president; E. B. Hurlbut, vice-president; J. J. Donleavy, secretary-treasurer.

American Chemical Society votes on constitutional change authorizing increase of directors from ten to fourteen, planning to add four new directors at large to be chosen on basis of business ability and experience.

Colgate-Palmolive-Peet purchase of Kirkman & Son increases Eastern manufacturing facilities and is expected to greatly reduce freight bill of company which was about $4,000,000 for 1929.

Cornstalk Products Co., Danville, Ill., assets are ordered sold by United States District Court, on petition of receivers. Company was formed three years ago to manufacture pulp for paper.

Scott Paper Co. sales for September were $1,030,308, largest for any month in company's history, and exceeded September, 1929, sales by 17.3 per cent.

George Lueders & Co. appoint Arthur G. Fox, formerly with Fox & Clarke, in full charge of Chicago office.

Link-Belt Co., Indianapolis, Ind., appoints Warren Maxwell superintendent of Dodge Works.

Present alcohol regulations continue in effect until Jan. 1.

Rosario Nitrate Co. joins Chilean nitrate merger.

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Quality and Service

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Plans for 13th Exposition of Chemical Industries, to be held May 4-11, Grand Central Palace, New York, mature rapidly. Preparatory work was done during summer in connection with Students' Course of Lectures. Advisory committee position includes Dr. Arthur D. Little, chairman; Raymond F. Bacon, L. H. Baekeland, J. V. N. Dorr, Lammot du Pont, Henry B. Faber, Moses Gomberg, Williams Haynes, Charles H. Herty, H. E. Howe, Louis Kahlenberg, Sidney Kirkpatrick, Fred W. Payne, W. T. Read, Charles F. Roth, L. V. Redman, H. J. Schnell, R. Gordon Walker, A. H. White, David Wesson, M. C. Whitaker, T. B. Wagner and Victor Williams.

Du Pont Cellophane Co. begins production in new $4,000,000 plant at Ampthill, Va., November 1, employing 400 operatives. Size of cellophane plant at Old Hickory, Tenn., has just been doubled. Company reduces price of product ¼ cent per 1,000 square inches, due to increased acceptance by various industries.

Industrial Rayon Corp., with plants in Cleveland and Covington, Va., operates both plants at capacity. Company completes $250,000 expansion program at Cleveland plant, which will allow increase of 1,000,000 pounds annually.

American Society for Testing Materials votes to accept test method for identification of acetate, viscose and nitrate yarns. Committee confines efforts to staple lines rather than special style lines for present.

Merrimac Chemical Co., Everett, Mass., approves plans for new muriatic acid plant building to cost over $85,000, including equipment, an two-story addition to main chemical division, to cost about $40,000.

Permutit Co., New York, and Ward-Love Pump Corp., Chicago, merge, organizing as holding company General Water Treatment Corp. Combined assets amount to more than $4,000,000.

International Bitumen Co., Ltd., mines Canadian tar sands to extract pure bitumen. Company is said to control large deposits and to plan 1,000 barrels a day production when in full operation.

American Cyanamid Co. arranges for construction of first units of new superphosphate plant near Tampa, Fla., to consist of several buildings, costing over $2,500,000.

Aluminum Co. of America foil mill resumes operations to supply marked increase in shipments brought about by improved conditions in foil business.

Ungerer & Co., dealers in essential oils and aromatic chemicals, appoint Walter S. Goff as assistant to Harry J. Ahles, manager, Chicago office.

Standard Bleachery Co., Rutherford, N. J., one of oldest bleacheries in New Jersey, is placed in hands of receiver, Arthur T. Vanderbilt.

General Dyestuff Corp. doubles staff of Charlotte, N. C., branch on completion of new building, now employing fifty.

MacAndrews & Forbes, largest licorice root importer, increases sales of maftex, insulating board, one of its by-products.

R. F. Johnston Paint Co., Cincinnati, is placed in receivership on application of Spencer, Kellogg & Sons Sales Corp.

Pfister & Vogel Leather Co., Milwaukee, curtails operations and reduces employment to reduce large inventories.

American Electrochemical Society meets at Hotel Tutwiler, Birmingham, Ala., April 23-25, 1931.

New Incorporations

Russell Laboratories, New York, chemicals—H. Goldman, 500 shs. com.
Arlo Chemical Laboratories, New York, drugs—B. Hess, 200 shs. com.
M. F. Kirk Co., Wilmington, Del., drugs, chemicals—Corp. Trust Co., $400,000, 20,000 shs. com.
Granada Products Corp., New York, paints—Van Ness & Van Ness, $5,000.
Wallace A. Bush Chemical Corp., New York—H. P. Eppig, 200 shs. com.
Marcol Laboratories, New York, pharmaceutical products—S. S. Isaacs, 100 shs. com.
General Hydro Carbon Corp., Wilmington, Del., hydro-carbon products, chemicals—Corp. Trust Co., $100,000, 100,000 shs. com.
Western Scientific Co. Ltd., Dover, Del., chemicals—U. S. Corp. Co., $200,000, 20,000 shs. com.
Briggs Bituminous Composition Co., Dover, Del., paints, varnishes, oils, fillers, —Capitol Trust Co. of Del., 1,000 shs. com.
Perfect Laboratories, New York, paints—H. A. Freisner, $2,000.
Morrisey Chemists, New York—D. T. Rosen, $20,000.
Paige-Jones Chemical Co., Wilmington, Del., chemicals—Corp. Trust Co., $25,000.
Horn Maintenance Division, New York, waterproofing materials—A. W. Feinberg, 2,000 shs. com.
Parisian Products Corp., Newark, pharmaceutical products—Philip P. Coffin, Jr., $125,000 pfd. 2,500 shs. com.
Lustro Products Corp., New York, chemicals—A. C. Lopez, 1,000 shs. com.
Advance Solvents and Chemical Corp., New York—A. C. Vandiver, $100,000.
W-K Oil Co., Inc., Belleville, N. J., oils, greases—Registrar & Transfer Co., 1,500 shs. com.
Certified Products, Inc., Newark, chemists—Cohen & Klein, 3,000 shs. com.
G. & E. Chemical Co., Inc., Atlantic City, chemicals—Williamson & Williamson, $50,000.
Rolls & Darlington, Ltd., Toronto, chemicals—$100,000.
Fix All Chemical Co., Ltd., Toronto—40,000 no par shs.
General Paint Corp. of Canada, Ltd., Vancouver—$300,000.
Kenneco, Ltd., Montreal, chemicals—50,000 no par shs.
John H. Woodbury, Ltd., Perth, Ontario, chemicals—2,000 no par shs.
W. C. Edwards & Co., Ltd., Ottawa, pulp and paper—$1,000,000.

Union Explosives Co., Clarksburg, W. Va., merges with Peerless Explosives Co., and Black Diamond Powder Co., both of Philadelphia.

Consolidated Mining & Smelting Co., Trail, B. C., develops phosphate claims in Bloomington Canyon, Idaho. Company expects to make shipments next spring of 100 tons per day.

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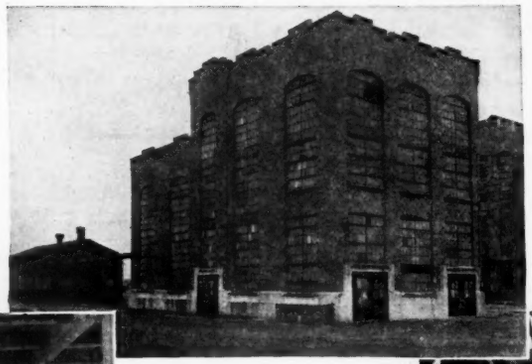
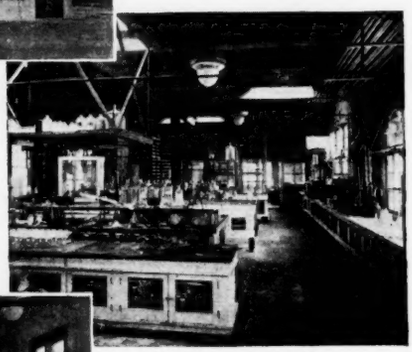
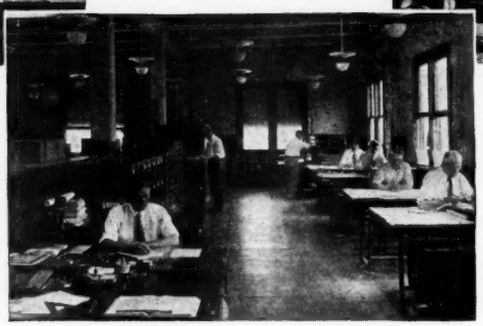


RESEARCH LABORATORY BUILDING

ENGINEERING DEPARTMENT AND LIBRARY



CONTROL LABORATORY



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HOOKER CHEMICALS

4705

The Financial Markets

Du Pont Report for Third Quarter Shows $1.05 Earning Per Share

Common Stock Earnings for Nine Months over Four Millions—Surplus Increased to $206,164,647.

E. I. du Pont de Nemours & Co. report for the third quarter of this year shows $1.05 a share earned on average number of 11,009,774 shares of common stock outstanding for quarter, which compares with $1.80 a share earned on average number of 10,322,481 shares outstanding for same period last year. Net income for quarter is $13,033,345 as against $20,029,831 for corresponding period last year. Figures include $7,487,465 income from General Motors investment for third quarter of this year as against $10,505,322 included for the same period last year.

Earnings for first nine months of this year, applicable to common stock, amounts to $41,505,674, or $3.88 a share on average number of 10,700,000,970 shares outstanding, compared with $57,215,662 or $5.64 a share on average number of 10,153,014 shares outstanding during 1929 nine months' period.

Income from operations for nine months of this year totals $19,540,038. For same period of 1929 it was $26,354,416. Income from General Motors investment for the current three-quarter year is $25,452,322 and $35,455,453 for same period last year, and income from Miscellaneous and Marketable Securities was $3,224,740 as compared with $3,120,150. Net income before dividends on debenture stock, but after making provision for Federal income taxes and interest on bonds of subsidiary companies was $45,984,659 for nine months this year, compared with $61,566,243 for same period last year.

Surplus account as of September 30, last year, was $147,416,880. This year it is $206,164,647, which compares with $144,920,215 at December 31, 1929. The increase comprises $6,429,528, from undivided profits for the nine months' period; $7,767,060 from issue of common stock sold under Executives Trust and Bonus Plans; $6,340,559 from acquisition of The Roessler & Hasslacher Chemical Company; $18,249,540 Premium (excess over par value) received for common stock issued under subscription offer; and $22,457,745 from revaluation of the investment in equivalent of 9,981,220 shares General Motors common stock to $18.75 a share, which closely corresponded to net asset value as shown on the balance sheet of General Motors Corporation at December 31, 1929.

INCOME ACCOUNT

	Three Months Ended September 30th	
	1930	*1929*
Income from Operations	$4,834,721	$ 9,569,517
Income from Investment in General Mortors Corp.	7,487,465	10,505,322
Income from Misc. and Marketable Securities, etc.	1,199,367	1,119,821
Total Income	$13,521,553	$21,194,660
Provision for Federal Income Tax	470,057	1,145,746
Net Income before Interest on Bonds	$13,051,496	$20,048,914
Interest on Bonds of Subsidiary Co.	18,151	19,083
Net Income	$13,033,345	$20,029,831
Dividends on Debenture Stock	1,493,028	1,489,138
Amount Earned on Common Stock	$11,540,317	$18,540,693
Average No. Shares of $20 par value Common Stock outstanding during period	11,009,774	10,322,481
Amount Earned a Share	$1.05	$1.80

Swann Corporation declares regular quarterly dividend of 15c a share on its A and B common stock, payable October 1.

Mathieson Alkali Reports Net of $489,828

Mathieson Alkali Works, Inc., reports for quarter ended September 30, 1930, net income of $489,828, after depreciation, depletion, federal taxes, etc., equivalent, after dividend requirements on 7% preferred stock, to 69 cents a share on 650,380 no-par shares of common stock. This compares with $565,687, or 81 cents a share on 650,380 shares in preceding quarter and $609,532, or 94 cents a share on 591,553 shares in third quarter of previous year. Net income for first nine months of 1930 totaled $1,597,462, after above charges, equal to $2.26 a share on 650,380 common shares, comparing with $1,726,904, or $2.66 a share, on 591,553 shares in first nine months of 1929. Income account for quarter ended September 30, 1930, compares as follows:

	1930	*1929*	*1928*
Operating profit	$850,326	$951,984	$884,213
Depr. & depl	310,612	257,728	228,866
Profit	$539,714	$694,256	$655,347
Other income (net)	8,136	8,361	*5,333
Total income	$547,850	$702,617	$650,014
Federal taxes	58,022	93,085	76,123
Net income	$489,828	$609,532	$573,891

Nine months ended September 30:

	1930	*1929*	*1928*
Operating profit	$2,638,787	$2,724,666	$2,480,125
Depr & depl	893,541	772,408	682,832
Profit	$1,745,246	$1,952,258	$1,797,293
Other income (net)	43,951	25,182	*28,297
Total income	$1,789,197	$1,977,440	$1,768,996
Federal taxes	191,735	250,536	208,976
Net income	$1,597,462	$1,726,904	$1,560,020

*Debit.

American Smelting & Refining Dividend $2.74

American Smelting & Refining Co. reports for six months ended June 30, 1930, net income of $6,879,442 after interest, taxes, depreciation and depletion, etc., comparing with $10,947,501 in first half of 1929. After payment of dividends on 7% and 6% second preferred stocks, balance is equivalent to $2.74 a share on 1,829,940 no-par shares of common stock which will be outstanding when all $100 par stock has been exchanged for no-par shares, comparing with $5.02 a share on same number of common shares in first half of 1929. Profit and loss surplus on June 30, last, amounted to $45,637,579, as compared with $44,281,168 on December 31, 1929, and $40,820,205 on June 30, 1929. Cash, demand loans and United States Government securities amounted to $35,280,791, compared with $26,668,743 on June 30, a year ago. Consolidated income account for six months ended June 30, 1930, compares as follows:

	1930	*1929*	*1928*	*1927*
Net earn	$11,198,540	$16,750,709	$13,663,135	$13,796,756
Other income	948,029	780,320	659,239	1,011,686
Total inc	$12,146,569	$17,531,029	$14,322,374	$14,808,442
Adm exp, etc	1,077,032	957,347	933,334	827,227
Taxes	398,408	1,462,976	1,061,824	1,258,294
Int. etc	919,364	943,783	1,165,756	1,260,022
Depr. depl, etc	2,872,323	3,219,422	2,942,009	2,954,955
Net inc	$6,879,442	$10,947,501	$8,219,451	$8,507,944
Pfd divs	1,750,000	1,750,000	1,750,000	1,750,000
2nd pfd divs	113,151	.....	.....	.....
Com divs	3,659,880	3,659,880	2,439,920	2,439,920
Surplus	$1,156,411	$5,537,621	$4,029,531	$4,318,024
P & L surp	45,637,579	40,820,205	31,076,756	28,515,318

Chile Copper Company announces cut in dividend rate, the third one in successive quarters. The new rate, is 50 cents a share for three months, putting the stock on a $2 annual basis.

YOU are protecting your business when you select a dependable source of supply. Buying your chemicals from Fergusson is good business insurance.

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International Agricultural Pays Back Dividends

International Agricultural Corp. and affiliated companies report for year ended June 30, 1930 net profit of $1,526,176 after interest, depreciation, depletion, etc., equivalent to $15.26 a share on 100,000 shares of 7% prior preference stock, on which there is an accumulation of unpaid dividends. Allowing only regular annual dividend requirements on prior preference stock balance is equal to $1.83 a share on 450,000 no-par shares of common stock. This compares with $1,116,617, or $11.16 a share, on prior preference and 92 cents a share on common stock in preceding year.

Consolidated income account for year ended June 30, 1930, compares as follows:

	1930	*1929*	*1928*	*1927*
Gross profit	$4,382,682	$3,711,480	$3,820,562	$1,769,236
Expenses	1,836,925	1,775,885	1,668,154	1,354,793
Oper profit	$2,545,757	$1,935,595	$2,152,408	$414,443
Other inc	121,453	131,312	62,230	49,555
Total inc	$2,667,210	$2,066,907	$2,214,638	$463,998
Interest	469,713	492,304	445,816	441,255
Depr. & depl	604,323	520,327	466,141	375,058
Profit	$1,593,174	$1,054,276	$1,302,681	*$352,315
Prof. bds. prch	68,002	62,341	.....	.....
Rec from Ger debt	.....	.....	143,924	.....
Profit	$1,661,176	$1,116,617	$1,446,605	*$352,315
Federal taxes	135,000	.....	.....	.....
Net profit	$1,526,176	$1,116,617	$1,446,605	*$352,315
‡Pr prf divs	525,000	700,000	175,000	525,000
Surplus	$1,001,176	16,617	$1,271,605	†$877,315

*Loss. †Deficit. ‡In 1930, 5¼%; 1929, 7%; 1928, 1¾% and 1927, 5¼%

Texas Gulf Net Slightly Lower

Texas Gulf Sulphur Co., Inc., reports for quarter ended September 30, 1930, net income of $3,341,753 after depreciation and federal taxes, but before depletion, equivalent to $1.31 a share on 2,540,000 shares of no-par stock. This compares with $3,648,345 or $1.43 a share in preceding quarter and $4,028,959 or $1.58 a share in third quarter of previous year.

Net income for first nine months of 1930 totaled $10,793,799 after above charges, equal to $4.25 a share, comparing with $11,480,489 or $4.52 a share in first nine months of 1929.

During the last quarter the company increased its reserves for depreciation and accrued federal taxes by $322,617, making total of these reserves $13,227,661 on September 30, 1930.

Statement for quarter ended September 30, 1930, compares as follows:

	1930	*1929*	*1928*	*1927*
*Net Income	$3,341,753	$4,028,959	$3,680,723	$2,936,189
Dividends	2,540,000	2,540,000	2,540,000	2,540,000
Surplus	$801,753	$1,488,959	$1,140,723	$396,189

Nine months ended September 30:

	1930	*1929*	*1928*	*1927*
*Net income	$10,793,799	$11,480,489	$10,355,381	$9,053,097
Dividends	7,620,000	7,620,000	7,620,000	7,620,000
Surplus	$3,173,799	$3,860,489	$2,735,381	$1,433,097
P & L surplus	24,562,360	19,161,572	13,678,845	10,437,188

*After depreciation and federal taxes. †Includes reserves for depletion.

Link Belt Company—Nine months ended Sept. 30: Net profits, after depreciation, Federal taxes and other charges, $1,802,111, equal, after preferred dividends, to $2.26 a share on common stock, compared with $2,431,322, or $3.15 a share last year. Three months: $495,912, or 60 cents a share, compared with $915,391, or $1.19 a share last year.

Abbott Laboratories, Inc., special meeting of stockholders October 21 votes to increase capital stock to 200,000 shares from 150,000 shares, and to vote on proposed increase in directorate to 11 members from nine.

Of the increased capital 5,000 shares are to be reserved for employes.

Union Carbide Profit Higher

Union Carbide & Carbon Corp. and subsidiaries report for quarter ended September 30, 1930, net profit of $7,208,679 after interest, federal taxes, depreciation and preferred dividends of subsidiaries, equivalent to 80 cents a share on 9,000,743 no-par shares of stock outstanding at end of the period. This compares with $6,306,802 or 70 cents a share on 9,000,743 shares in preceding quarter and $9,522,421 or $1.14 a share on 8,313,818 shares in third quarter of previous year.

Net profit for first nine months of 1930, totaled $19,988,264 after above charges, equal to $2.22 a share on 9,000,743 shares against $24,050,664 or $2.89 a share on 8,313,818 shares in first nine months of 1929.

Consolidated income account for quarter ended September 30, 1930, compares as follows:

	1930	*1929*	*1928*	*1927*
Net af fed tax	$9,508,731	$11,965,911	$10,077,866	$9,691,250
Int & sub pfd divs	336,999	307,143	312,310	298,365
Depr., etc	1,963,053	2,136,347	2,008,815	1,928,931
Net profit	$7,208,679	$9,522,421	$7,756,741	$7,463,954

Nine months ended September 30:

	1930	*1929*	*1928*	*1927*
Net af fed tax	$26,865,969	$31,379,874	$26,517,649	$24,339,435
Int. & sub pfd divs	967,438	924,347	903,226	896,852
Depr., etc	5,910,267	6,404,863	6,084,840	5,769,777
Net profit	$19,988,264	$24,050,664	$19,629,483	$17,672,806

Hercules Powder Company reports net profit of $2,160,260 for the nine month period ending September 30. After payment of regular preferred dividends there is available for the period $2.59 per share on 603,079 no par common shares. Gross receipts were $20,416,664 as against $25,612,545 for the first nine months of 1929 when earnings were $4.41 per common share.

The statement shows a sound financial position, surplus September 30 standing at $13,765,737 and cash and securities of over $8,000,000 being listed. Work on the company's new laboratories at Wilmington is moving ahead rapidly.

Duval Texas Sulphur Co. reports for period October 1, 1929, to August 31, 1930, net profit, including $10,314 profit from sale of capital assets, of $241,855 after taxes, interest, depreciation and depletion, equivalent to 48 cents a share on 500,000 no-par shares of capital stock. Gross for the period was $920,318.

Balance sheet as of August 31, 1930, shows total assets of $11,627,445. Current assets amounted to $490,603 and current liabilities $264,400.

Procter & Gamble annual meeting of stockholders of Procter & Gamble reelects present directors. Harry E. Jordan, Fred Moratti and John M. Cain, who were elected directors by employes, were confirmed by stockholders. They succeed Frank E. Goodlander, Charles C. Behme and William J. Cooper. Regular quarterly dividend of 60 cents is declared on common stock payable November 15 to stock of record October 25.

Earnings At a Glance

	9 Month Period	
	1930	**1929**
Atlas Powder	2.56	6.29
Atlantic Refining Co.	5.48	1.80
Commercial Solvents	.84	1.11
Consolidated Chemical Industries	1.80	1.89
Du Pont de Nemours	3.88	5.64
Hercules Powder Co.	2.59	4.41
Johns Manville Corp.	3.40	6.84
Mathieson Alkali Works	2.26	2.66
Texas Gulf Sulfur	4.25	4.52
Union Carbide & Carbon	2.22	2.89
Westinghouse Electric	4.25	7.32

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AMERICAN MINERAL SPIRITS COMPANY

306 So. Michigan Ave. Chicago — **205 East 42nd Street New York**

3520 W. 140th Street Cleveland, O.

Chemical Solvents Co., 110 E. 42nd Street New York

WM. S. GRAY & CO.

342 MADISON AVE., NEW YORK

Vanderbilt 0500 — **Cables: Graylime**

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Acetate of Soda

Acetone C. P.

Methanol (all grades)

Methyl Acetone

Denatured Alcohol (all formulas)

Formaldehyde

Phenol U. S. P.

Benzol

Whiting

Magnesium Carbonate

Magnesium Oxide

Quinine Bisulphate

Atlas Powder Reports Profit for Nine Months

Atlas Powder Company reports for the nine months ended September 30, shows net income of $1,075,099 after all charges as compared with $2,049,056 for corresponding period last year. This is equivalent, after payment of preferred dividends, to $2.56 a share on the company's no par common stock, compared with $6.29 last year. Net sales for the period were $12,867,878 compared with $17,212,357 in the period a year ago.

The company's statement shows strong cash position with cash items of $4,259,591 with no bank loans, and current assets over 15 times current liabilities. Purchase money notes were reduced $50,000 during the period.

Income Account

	1930	*1929*
Sales (Net)	$12,867,877.68	$17,212,357.29
Cost of Goods sold, delivery and other expenses	11,894,063.11	15,217,192.24
Net Operating Profit	$ 973,814.57	$ 1,995,165.05
Other Income (Net)	229,362.09	313,579.42
Gross Income	$ 1,203,176.66	$ 2,308,744.47
Federal Income Tax	128,077.15	259,688.32
Net Income	$ 1,075,009.51	$ 2,049,056.15
Dividends on Preferred Stock	405,000.00	405,000.00
Amount Earned on Common Stock	670,099.51	$ 1,644,056.15
Amount Earned per Share on Common Stock	$2.56	$6.29

Consolidated Chemicals Has Largest Quarter Profits

Consolidated Chemical Industries, Incorporated, show three months period ended September 40, 1930, to be the largest in both gross and net profits in the history of the company. The detailed figures, as compared with 1929, follow:

	1930	*1929*
Net inc. before res. for dep. and inc. taxes	$284,174	$203,948
Depreciations	61,253	25,171
Net before taxes	$222,921	$178,776
Res. for inc. taxes	22,735	22,555
Final net income	$200,185	$156,221

The gross profit of $284,174.60 and the net profit of $200,185.60 for third quarter as above, compared with $253,399.72 gross and $186,191.62 net for the second quarter and $176,760.60 gross and $127,149.52 net for the first quarter of 1930.

Net profits after all charges, including Federal taxes, for nine months of 1930 to date, have been $127,149.52 for first quarter, $186,191.62 for the second quarter, and $200,185.60, or a total net earnings for the three quarters of $513,526.97. This is at the annual rate of more than $3.30 per share on the company's outstanding class A convertible preference stock.

Sherwin-Williams Co. declares usual extra dividend of 12½ cents and the regular quarterly dividend of $1 on the common, both payable November 15 to stock of record October 31. The regular quarterly dividend of $1.50 on the preferred also was declared, payable December 1 to stock of record November 15.

Sales totaled $75,010,171 for the year as compared with $75,778,071 in 1929.

Report of Sherwin-Williams Co. for year ended August 31, 1930, shows net profit of $3,551,294 after depreciation, federal taxes, etc., equivalent after dividends paid on preferred stock, to $4.14 a share (par $25) on 635,583 shares of common stock. This compares with net profit of $6,019,475, or $8.25 a share, on 635,079 common shares in preceding year.

T. G. Murphey has been elected secretary, succeeding H. J. Douglas, resigned. L. Reese has been made comptroller.

Miami Copper Co. votes to omit quarterly dividend on common stock due at this time. The annual rate on the stock had been $1.50, instituted with the declaration of 37½c on July 7. Previous to that date the stock carried an annual rate of $4.

Johns-Manville Dividend Above Last Quarter's

Johns-Manville Corp. and subsidiaries report for quarter ended September 30, 1930, net profit of $1,202,867 after depreciation, depletion, federal taxes, etc., equivalent after dividend requirements on 7% preferred stock to $1.43 a share on 750,000 no-par shares of common stock. This compares with $998,529 or $1.16 a share in preceding quarter and $2,483,300 or $3.14 a share in third quarter of previous year.

Net profit for nine months ended September 30, amounted to $2,943,027 after above deductions, equal to $3.40 a share on common comparing with $5,522,396 or $6.84 a share in first nine months of 1929. Consolidated income account for quarter ended September 30. 1930, compares as follows:

	1930	*1929*	*1928*
Sales	$12,581,619	$17,184,461	$12,531,502
Exp., depr., depl., etc.	11,223,356	14,411,931	10,616,709
Balance	$1,358,263	$2,772,530	$1,914,793
Federal taxes	155,396	289,230	192,342
Net profit	$1,202,867	$2,483,300	$1,722,451

Nine Months ended September 30:

	1930	*1929*	*1928*
Sales	$38,143,538	$46,776,102	$34,875,232
Exp., depr., depl., etc.	34,827,342	40,587,315	30,312,352
Balance	$3,316,196	$6,188,787	$4,562,880
Federal taxes	373,169	666,391	467,285
Net profit	$2,943,027	$5,522,396	$4,095,595

Westvaco Chlorine Products Corp. and subsidiaries report for nine months ended September 30, 1930, net profit of $577,665 after interest, depreciation and federal taxes, equivalent, after dividend requirements on 7% preferred stock, to $2.05 a share on 225,155 no-par shares of common stock. This compares with $841,840, or $3.22 a share on 225,109 shares, in first nine months of previous year. Net profit for September quarter was $126,911 after above charges, equal to 39 cents a share on 225,155 common shares, comparing with $210,992, or 76 cents a share, on 225,155 shares, in preceding quarter and $258,191 or 98 cents a share on 225,109 shares, in third quarter of 1929.

Commercial Solvents Corporation reports net profit $634,772 for September quarter after depreciation. Federal taxes and provision for contingencies and inventory adjustments, equal to 25 cents a share on 2,528,999 common shares, against $1,011,73 or 40 cents a share, based on the present number of shares, in the 1929 quarter. For nine months net profit was $2,130,289 or 84 cents a share, against $2,800,662 or $1.11 a share, based on the present number of shares, in 1929 period.

National Lead Co. declares regular quarterly dividend of $1.75 on the Class A preferred, payable December 15 to stock of record November 28.

Over the Counter Closing Prices

Dividend		October 31 1930 Bid	October 31 1930 Asked	September 28 1930 Bid	September 28 1930 Asked
$1.20	Baker, (J. T.) Chemical, com.	13	15	13½	15½
2.00	Bon Ami B com.	...	41	...	41
8.00	Dixon (Joseph Crucible)	140	155	155	165
....	Dry Ice Holding Corp.	45	50	47	51
8.00	Merck Corp. pfd	77	81	78	83
7.00	Okonite, pfd	82	87	85	95
4.00	Permutit Co. com.	225	250	230	250
....	Petroleum Derivatives	4	7	4	8
....	Solid Carbonic Ltd.	13½	16½	15½	18
....	Sou hern States Oil	¼	¾	¼	
....	Standard Textile Products	...	22	...	2½
5.00	Worcester Salt	90	95	90	95

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Air Reduction Increases Profit

Air Reduction Co., Inc., shows net profits after taxes of $1,264,357 for three months ended September 30, compared with $1,562,622 for corresponding period of 1929. Such profits are equal to $1.53 per share on 825,597 shares of no par value capital stock as against $2.05 per share earned by company on 761,863 shares outstanding during third quarter of 1929. Gross income amounted to $5,047,388, compared with $5,718,343.

For nine months the company reports net profits, after Federal taxes, of $4,148,202, a decrease of 3.37 per cent from profits of $4,292,956 for similar period last year. Gross income amounted to $15,706,660, a decrease of 1.72 per cent from $15,582,070 for first nine months of 1929.

Davison Chemical Co. completes arrangements for financing realty developments at Curtis Bay and Hawkins Point, on the Baltimore waterfront, by Davison Realty Co., subsidiary of Davison Chemical Co. Realty company has sold to local bankers an issue of $2,000,000 6% sinking fund notes dated October 1, and maturing same date in 1940. Each note bears a non-detachable warrant entitling holder to purchase 10 shares of Davison Chemical stock for each $1,000 note at $30 a share on or before September, 1931, with successive increase of $5 a share in the price each 12 months until maturity. The notes are guaranteed by parent company.

Spencer Kellogg & Sons, Inc., and subsidiaries report for 11 months ended August 30, 1930, net profit of $636,614 after depreciation, interest and federal taxes, equivalent to $1.16 a share on 550,000 no-par shares of common stock. In fiscal year ended September 28, 1929, company reported net profit of $1,297,730, equal to $2.36 a share on common. Company has changed its fiscal year to end August 30.

American-La France and Foamite Corporation reports operating gain before interest for the third quarter of $32,779 and net loss after interest of $45,830 on gold notes outstanding of $4,881, against net profit of $79,702 in the 1929 quarter. For nine months operating loss before interest was $5,378, and after interest net loss was $116,486, against profit of $159,040 in the like period of last year.

Penick & Ford, Ltd., Inc., declares extra dividend of 50 cents and regular quarterly dividend of 25 cents on the common stock, payable December 1 to stock of record December 15, and regular quarterly dividend of $1.75 on preferred, payable January 1 to stock of record December 15.

The company will recall all outstanding preferred consisting of 8,571 shares, on January 1 at 100%.

Merck & Co., calls for redemption as of October 1 a $300,000 first mortgage 6 per cent bonds. The total outstanding funded debt now $900,000, having been reduced in three years from $2,700,000, which amount was issued at the time of the acquisition, July, 1927, of the business of Powers-Wightman-Rosengarten, Philadelphia.

American Solvents and Chemical Corp. vote to omit regular quarterly dividend of 75 cents on cumulative preference stock. H. I. Peffer, president states: "This action has been taken as a conservative course by the board of directors. The company is in good cash position and its officers feel that its future outlook is fully assured."

Abbott Laboratories declares a special dividend of 12½ cents a share payable November 1 to holders of record October 21. This brings the annual dividend to $2.50, as against $2 paid previous to the July 1 payment.

Stock Exchange Listings

American Agricultural Chemical Company—Certificates of deposit for common and preferred stocks.

American Zinc Lead and Smelting Company—200,000 shares of common stock without par value.

International Salt Co. permanent certificates for capital stock.

New York Steam Corporation—$13,684,000 first mortgage gold bonds, 5 per cent series, due May 1, 1951.

Phelps Dodge Corporation—222,912 additional shares of capital stock, $25 par value.

McKesson & Robbins, Inc.—Temporary twenty-year 5½ per cent convertible debentures, due May 1, 1950 are stricken from list.

American Metal Company (Limited)—350,000 additional shares of common capital stock without par value.

Columbian Carbon Company files application to list voting trust certificates for 498,505 shares of capital stock, without par value, extended to 1935.

Dominion Tar Chemical Co., Ltd.—Curb—300,000 shares of common stock, no par value, and 75,000 shares of 6½ per cent cumulative preference stock, par value $100; unit of trading in preference stock, 10 shares.

American Agricultural Chemical Bonds

American Agricultural Chemical Co., calls for redemption February 1, 1931 at 102½ not less than $1,000,000 par value of first refunding mortgage 7½% bonds. The remaining balance of bonds are subject to call at 102½. The original issue was $30,000,000. The amount outstanding on August 1 was $8,390,000, of which $223,500 was owned by the company and held in anticipation of sinking fund requirements.

Nichols Copper Co.'s net profit for six months ended June 30, 1930, is estimated at $301,879 after interest, federal taxes, etc.

Balance sheet as of June 30, 1930, (estimated) shows total assets of $24,417,754, compared with $21,279,057 on December 31, 1929, and surplus $4,328,687 against $4,264,633. Current assets were $13,765,175 and current liabilities $13,157,267 as compared with $11,049,258 and $10,082,624 respectively, on December 31, 1929.

Monsanto Chemical Works reports consolidated net earnings for third quarter of 1930 are $173,515.42, after taxes and all other charges. This is equivalent to .416 per share on 416,449 shares outstanding September 30. Additional 6246 shares were issued as a stock dividend on October 1. The earnings for nine months equal $1.90 per share.

Vanadium Corp. of America omits extra dividend of $1 usually declared at this time. Regular quarterly dividend of 75 cents was declared, payable November 15 to stock of record November 1.

Dow Chemical Co. declares regular quarterly dividends of 50 cents the common and $1.75 on preferred both payable November 15 to stock of record November 1.

Pennsylvania Salt Mfg. Co. stockholders reelect present directors.

Earnings reports, according to the *Wall Street Journal* compared with those for the corresponding periods of a year ago, and dividend announcements by leading companies shape up as follows:

	Since Oct. 1
Increased earnings	113
Decreased earnings	241
Unchanged dividends	287
Increased dividends	31
Decreased dividends	14
Omitted dividends	30

The Industry's Stocks

1930 Oct. High	1930 Oct. Low	1930 Last	1930 High	1930 Low	1929 High	1929 Low	Sales In Oct.	Sales During 1930	ISSUES	Par $	Shares Listed	An. Rate	Earnings $-per share-$ 1929	Earnings $-per share-$ 1928
NEW YORK STOCK EXCHANGE														
114⅛	96⅜	100½	156⅜	96⅜	223⅜	77	210,300	1,703,700	Air Reduction	No	770,000	$3.00	5.63	4.61
243	194	196½	343	194	354½	197	164,700	550,700	Allied Chem. & Dye	No	2,286,000	6.00	12.60	11.12
126½	122	123	126½	121	125	118½	1,500	12,300	7% cum. pfd.	100	393,000	7.00	76.84	68.63
3¼	2	2¼	10⅜	2	23⅜	4	21,800	123,800	Amer. Agric. Chem.	100	333,000		Nil	1.59
31½	22½	23	39	22½	73⅜	18	22,200	48,500	6% cum. pfd.	100	285,000		2.47	7.86
15⅜	11	13	33	9½	55	20	18,500	173,500	Amer. Com. Alc.	No	382,000	1.60	4.78	3.39
23¾	18½	20¼	51½	18⅛	81¾	31½	24,800	299,800	Amer. Metal Co., Ltd.	No	868,000	3.00	3.23	3.58
104	100	...	117	100	135	106	600	3,100	conv. 6% cum. pfd.	100	69,000	6.00	47.53	26.52
57⅞	51½	53	79½	51	130½	162	106,100	990,800	Amer. Smelt. & Refin.	No	1,830,000	4.00	10.02	8.24
136½	134⅛	134⅛	141	133½	16⅛	15⅞	2,800	10,800	7% cum. pfd.	100	500,000	7.00	43.66	37.17
5⅜	3¼	4⅛	22½	3½	92⅜	25½	12,100	274,900	Amer. Solvents & Chem.	No	181,000		2.56	1.69
14	7	12	33½	7	138	123½	1,500	47,700	conv. $3 cum. pfd.	No	113,000	3.00	8.01	6.71
8	5¼	5½	17⅞	5¼	49½	7	16,000	301,600	Amer. Zinc. Lead, & Smelt.	25	200,000		11 mo. 0.76	Nil
57½	49	...	79⅛	49	111½	49⅛	1,300	25,200	6% cum. pfd.	25	97,000	6.00	11 mo. 7.41	5.99
39½	33	35½	81½	33	140	70	489,200	6,651,700	Anaconda Copper Mining	50	8,828,000	7.00	1928 6.63	3.37
20⅞	17½	20	29½	17½	49½	18⅛	15,400	250,200	Archer Dan. Midland	No	550,000	2.00	3 mo. 0.71	4.02
29½	21¼	22	51⅛	21⅛	77⅞	30	161,800	1,823,500	Atlantic Refining Co.	25	2,678,000	1.00	6.10	5.58
67½	54	58	106	54	140	67	6,700	128,200	Atlas Powder Co.	No	260,000	4.00	7.66	4.39
102½	99½	100	106	99½	106½	90	630	5,010	6% cum. pfd.	100	90,000	6.00	28.25	18.76
1½	1⅛	1⅛	4½	1⅛	12⅜	4⅛	4,500	59,200	Butte & Sup. Mining	10	290,000	2.00	Nil	0.28
2⅛	1⅛	2	4½	1⅛	9½	2	5,600	91,300	Butte Copper & Zinc	5	600,000		0.34	0.31
5½	4	4½	15⅞	4	32	10⅞	5,400	115,500	Certain-Teed Products	No	400,000		Nil	Nil
21⅛	20	...	45⅛	20	81½	45½	500	6,000	7% cum. pfd.	100	63,000		9 mo. 11.38	6.77
55½	49	51½	64⅞	49	90	40	7,500	77,700	Colgate-Palmolive-Peet	No	2,000,000	2.50	4.03	2.60
119½	84½	88½	199	84½	344	105	80,300	860,900	Columbian Carbon	No	457,000	4.00	7.84	6.39
23	17½	17⅞	38	17⅛	63	20⅛	382,500	5,473,800	Comm. Solvents	No	2,435,000	1.00	1.51	1.32
83¼	74⅛	74½	111⅛	74½	126⅜	70	103,400	602,100	Corn Products	25	2,530,000	3.00	5.49	4.35
151	148	148¼	151	137	144½	137	1,620	8,600	7% cum. pfd.	100	250,000	7.00	62.59	50.98
23½	18	18⅛	43⅜	18	69⅛	21½	38,700	407,400	Davison Chem. Co.	No	504,000	1.00	3.34	1.58
20⅛	18	20⅛	42½	18	64⅜	24	1,400	56,100	Devoe & Raynolds "A"	No	160,000	2.40	4.52	5.95
106½	104½	102½	115½	99	115½	102	290	380	7% cum. 1st pfd.	100	16,000	7.00	67.59	64.02
109	88⅜	89½	145½	88⅜	231	80	616,400	2,665,600	Dupont de Nemours	20	10,339,000	4.00	6.99	5.97
122⅞	118½	118½	123	114½	119⅜	107⅞	4,500	40,700	6% cum. deb.	100	978,000	6.00	78.54	69.06
207½	168⅜	171¾	255¼	168⅜	264½	150	194,100	1,282,200	Eastman Kodak	No	2,263,000	5.00	1928 9.60	9.61
132	128⅛	130	132	125⅛	128	117	370	1,780	6% cum. pfd.	100	62,000	6.00	1928 326.17	326.68
42⅛	33	33⅜	55½	33	54⅛	23⅜	94,900	1,115,900	Freeport Texas Co.	No	730,000	4.00	5.60	4.49
37½	28⅜	28⅜	71⅛	28⅜	94⅜	42½	41,500	757,000	General Asphalt Co.	No	411,000	4.00	3.65	2.79
14⅛	10⅛	10⅜	38	10⅛	64⅛	26	35,700	513,200	Glidden Co.	No	688,000	2.00	3.57	3.55
90½	83	83	105½	83	106⅛	95	210	74,100	7% cum. prior pref.	100	74,000	7.00	39.51	32.69
65½	60	60	85	60	130	80	1,000	11,300	Hercules Powder Co.	No	568,000	3.00	5.95	22.04
121½	119½	120	123¾	117	121	112½	546	2,706	7% cum. pfd.	100	114,000	7.00	38.16	35.35
78	31	47½	124	31	135	68½	28,600	80,900	Industrial Rayon	No	191,000		7.26	8.68
4½	3⅜	4⅜	8⅛	3⅜	17⅞	4	13,400	166,000	Intern. Agric.	No	444,000		0.79	1.66
54	43⅛	53⅜	54	52	88½	40	9,800	33,800	7% cum. prior pfd.	100	100,000	7.00	10.54	14.47
22⅜	16½	17½	44⅜	16½	72⅛	25	1,709,218	9,914,118	Intern. Nickel	No	13,781,000	1.00	1.47	1.05
38½	31	37	45½	31	80½	61½	29,300	437,350	Intern. Salt	100	61,000	6.00	11.32	7.23
79½	64½	68½	148⅛	64½	242½	90	163,600	1,824,900	Johns-Manville Corp.	No	750,000	3.00	8.09	6.75
14½	12	12	25	12	42	20	3,600	7,000	Kellogg (Spencer)	No	598,000	1.60	2.36	3.42
63	45½	48	81⅛	45½	113⅞	40	26,600	466,100	Liquid Carbonic Corp.	No	311,000	4.00	6.12	6.76
15⅛	10⅜	12½	37⅜	10⅜	59	21½	19,000	305,000	McKesson & Robbins	No	1,117,000	2.00	6 mo. 1.50	3.77
38½	25⅛	29⅜	49½	25⅛	63	40	14,400	40,800	conv. 7% cum. pref.	50	426,000	3.50	6 mo. 5.13	11.51
25	23	24	39⅜	23	46	30½	2,200	275,400	MacAndrews & Forbes	No	384,000	2.60	9 mo. 2.21	3.30
38½	33⅜	34	51⅜	32⅛	72⅜	29	35,700	636,700	Mathieson Alkali	No	637,000	2.00	3.31	2.95
134⅛	130	130	134½	115	125	120	210	1,060	7% cum. pfd.	100	28,000	7.00	93.91	84.50
34⅜	23	26	64⅜	23	80½	47	15,600	278,000	Monsanto Chem.	No	404,000	1.25	2.83	3.76
29½	22½	23¼	39½	22½	58	15	15,200	201,400	National Dist. Prod.	No	275,000	2.00	1.32	Nil
126	116½	120	189½	116½	210	129½	7,600	89,800	National Lead	100	310,000	5.00	25.49	11.45
143	141	141	143	138½	141⅛	138	1,240	7,240	7% cum. "A" pfd.	100	244,000	7.00	41.95	24.10
119½	117	118	119⅛	116	23⅜	115	350	3,470	6% cum. "B" pfd.	100	103,000	6.00	82.47	40.34
52	49	...	55⅜	26⅛	103	143	1,600	13,000	Newport $3 cum. conv. "A"	50	130,000	3.00	29.79	5.55
41⅜	33⅛	38⅛	55⅜	26⅛	60⅞	22	59,600	562,500	Penick & Ford	No	434,000		3.97	2.56
...	...	...	110	107	110	100		180	7% cum. pfd.	100	33,000	7.00	73.33	53.42
70⅜	66	66½	70⅞	52⅜	98	43⅛	33,200	486,950	Procter & Gamble	No	6,410,000	2.00	6 mo. 1.82	2.96
18⅜	10½	12⅛	27⅛	10½	30⅜	20	150,900	903,700	Pure Oil Co.	25	3,038,000	1.50	3.06	0.97
110½	102½	105	114⅛	102½	116	108	930	6,640	8% cum. pfd.	100	130,000	8.00	40.09	16.82
46⅜	43	44⅛	56⅛	43	64	43⅜	80,800	768,600	Royal Dutch		993,000		1928 24.09%	24.10%
34	28	28⅛	57⅛	28	94	38⅜	20,100	306,500	St. Joseph Lead	10	1,952,000	2.00	6 mo. 2.22	2.30
12⅜	9¼	10⅜	25⅜	9¼	31⅜	19	119,750	812,650	Shell Union Oil	No	13,069,000	1.40	9 mo. 1.39	2.04
57⅛	51	51	75	51	31⅞	51½	126,100	1,281,800	Standard Oil, Calif.	No	13,016,000	2.50	1928 3.66	3.19
62⅜	52	52⅛	84⅛	52	83	48	833,500	11,133,200	Standard Oil, N. J.	25	25,419,000	1.00	1928 4.43	1.52
29½	25½	26⅜	40⅜	25½	48⅛	31⅜	249,500	2,283,000	Standard Oil, N. Y.	25	17,380,000	1.60	1928 2.28	0.67
10	8½	9½	17	8½	20⅛	9⅜	18,100	323,700	Tenn. Copper & Chem.	No	857,000	1.00	1928 1.48	0.51
47	38⅜	40½	60½	38⅜	71⅞	50	252,900	1,638,900	Texas Corp.	25	9,851,000	3.00	4.91	5.34
56⅜	50½	52	67⅜	50½	85½	42½	130,000	1,277,500	Texas Gulf Sulphur	No	2,540,000	4.00	6.40	5.72
71⅛	59	60½	106⅜	59	140	59	669,200	4,852,800	Union Carbide & Carb.	No	9,208,000	2.40	3.94	3.72
43	28½	29⅜	84	28⅜	111⅜	40½	102,200	1,375,000	United Carbon Co.	No	393,000		1.75	1.99
68⅞	58½	63½	139⅜	58½	243⅜	95	35,700	1,003,800	U. S. Ind. Alc. Co.	No	373,000	6.00	12.63	10.29
64⅜	46⅜	48⅛	143½	46⅜	116½	37½	1,337,900	7,911,900	Vanadium Corp. of Amer.	No	379,000	3.00	5.04	4.53
3½	2½	2⅜	8⅛	2½	24½	3⅜	9,400	143,200	Virginia Caro. Chem.	No	479,000		Nil	0.69
25	19	22	34½	19	65½	15	15,100	62,300	6% cum. part. pfd.	100	214,000		3.06	7.57
80	73⅛	76	82⅜	75	97½	69	3,900	43,900	7% cum. prior pfd.	100	144,000	7.00	12.35	20.09
34½	27½	27½	59½	27½	94⅛	30	2,600	44,800	Westvaco Chlorine Prod.	No	123,000	2.00	4.32	3.60
NEW YORK CURB														
6⅞	3⅛	...	13	3⅛	23	6	2,100	5,910	Acetol Prod. conv. "A"	No	60,000		1928 2.27	
18	16	...	34	16	43½	15	250	17,300	Agfa Ansco Corp.	No	300,000		Nil	
194	150	168	356	150	539½	146	7,650	49,150	Aluminum Amer.	No	1,473,000		1928 8.03	5.00
109½	109½	...	110	105½	110	103	4,300	41,400	6% cum. pfd.	100	1,473,000	6.00	1928 14.04	10.26
107	95	...	232	95	280	99½	1,440	15,340	Aluminum Ltd.	No	573,000		1928 0.02	
13⅛	10	10½	37	10	80	20½	155,300	2,031,100	Amer. Cyanamid "B"	No	1,260,000	1.60	1.56	3.68
23	15½	20	43⅜	15½	45½	1	15,400	222,300	Anglo-Chilean Nitrate	No	1,757,000		6 mo. Nil	Nil

1930 Oct. High	Low	Last	1930 High	Low	1929 High	Low	Sales In Oct.	During 1930	ISSUES	Par $	Shares Listed	An. Rate	Earnings $-per share-$ 1929	1928
2	1¼	...	6¼	1¼	35⅛	3	1,900	14,600	Assoc. Rayon Corp.	No	1,200,000			
50	44⅜	50	60⅜	38⅜	87½	30½	3,800	42,300	conv. 6% cum. pfd.	100	200,000	6.00		
2¼	2⅛	2⅛	5½	1⅛	10⅜	3½	4,800	20,900	Brit. Celanese Am. Rcts.	105	2,200,000			
63	48	56	90	48	122	80	1,550	14,250	7% cum. part. 1st pfd.	100	115,000	7.00	15.51	12.00
85½	70	70	90	60	100	80	800	4,285	7% cum. prior pfd.	100	115,000	7.00	27.02	20.53
16⅜	13	...	20	12	50	12	125	3,610	Celluloid Corp.	No	195,000	1928	1.29	0.86
...	...	...	96	70	110	82		1,150	7% cum. 1st part. pfd.	No	24,000	7.00	1928	17.33	9.96
10⅛	9⅜	...	13½	9⅜	25½	12	1,600	8,000	Courtaulds, Ltd.	1£	24,000,000		1928	19.88%	34.88%
66½	49	...	100	49	100½	50	3,500	10,100	Dow Chemical	No	480,000	2.00			
103¾	80½	80⅝	166¾	80½	209	115	52,900	390,800	Gulf Oil	25	4,415,000	1.50	9.83	8.06
13	12½	12½	23	11½	41½	17⅜	700	4,700	Heyden Chemical Corp.	10	150,000	1928	2.02	1.02
4¾	4⅜	...	7	4⅜	11½	6⅜	800	2,700	Imperial Chem. Ind.	1£		1928	12.15%	10.23%
...	...	...	16	8	27	13½		5,700	Monroe Chem.	No	100,000	1.50	2.54	1.76
19¼	17	18	42	18	52	21½	13,400	86,300	Newport Co.	No	405,000	2.00	3.28	1.30
55	54½	54½	79½	54½	111⅛	65	100	2,000	Shawinigan W. & P.	No	1,867,000	2.50	2.35	2.17
75⅜	75	75	85	74	105⅛	75½	100	585	Sherwin-Williams Co.	25	594,000	4.00	7.85	6.99
13½	10½	10⅛	34½	10⅛	48½	14⅛	5,600	108,610	Silica Gel Corp.	No	600,000			
46	40	40½	59⅞	40	63	45	310,000	1,668,600	Standard Oil Ind.	25	13,927,000	2.50	1928	8.33	3.26
29¼	28⅛	29	34½	28	149⅞	121½	8,500	58,000	Swift & Co.	100	1,500,000	8.00	8.71	9.87
5½	3½	4½	22½	3½	550	111	12,740	46,420	Tubize "B"	No	79,000	10.00		
28	21	21	44	21					United Chemicals					
...	...	...	...	...	61½	25½	1,600	35,280	$3 cum. part. pfd.	No	120,000	3.00	2.61	
40	38	38½	58	36½	90⅜	36½	1,200	25,400	U. S. Gypsum Co.	20	765,000	1.60	3.98	7.21
									CLEVELAND					
94	93	93	138	93	98¾	92	150	4,283	Cleve-Cliffs Iron	No	498,000	5.00	1928	8.41	3.80
77	65	65	85	65	105½	75	2,277	9,44	Sherwin-Williams Co.	25	594,000	4.00		7.85	6.99
									CHICAGO					
40½	40	40	46¾	35	52	36	1,050	23,015	Abbott Labs.	No	120,000	2.00		4.92	4.00
5½	5½	5½	15	5½	26½	12	100	405	Monroe Chem.	No	100,000	1.50		2.54	1.76
20	18	18½	...	...	51	30	366	4,743	$3.50 cum. pref.	No	30,000	3.50		13.35	10.32
29½	28⅛	29¼	33¼	28	145	123	18,705		Swift & Co.	100	1,500,000	8.00		8.71	9.87
									CINCINNATI					
70¼	66	67	78⅛	65	100	44¾	4,579	57,688	Procter & Gamble	No	6,410,000	2.00	6 mo.	1.82	2.96
									PHILADELPHIA					
92	90½	91½	100	90	116	89	1,800	2,900	Pennsylvania Salt	50	150,000	5.00		10.64	8.27
									MONTREAL					
½	¼	...	...	...	22½	2	650	9,613	Asbestos Corp.	No	200,000			Nil	Nil
3	1	1	...	...	68	12	510	3,116	7% non-cum pfd.	100	75,000			0.24	3.35
3⅞	2½	2¾	12¼	2½	45	5	5,535	18,859	Can. Ind. Alcohol "A"	No	969,000	1.52		1.90	2.87
66½	50½	53	82⅛	50½	111	65	56,000	211,052	Shawinigan W. & P.	No	2,178,000	2.50		2.35	2.17

The Industry's Bonds

1930 Oct. High	Low	Last	1930 High	Low	1929 High	Low	Sales In Oct.	During 1930	ISSUE	Date Due	Int. %	Int. Period	Author-ized $
									NEW YORK STOCK EXCHANGE				
104⅛	103⅛	103¾	105½	102⅛	106⅛	103	127	783	Amer. Agric. Chem., 1st ref. s. f. 7½s.	1941	7½	F. A.	30,000,000
98	95	...	100½	95	99½	99½	50	929	Amer. Cyan. deb. 5s.	1942	5	A. O.	5,000,000
104⅛	100	101⅛	177	94⅛	135	95	1,046	5,826	Amer. I. G. Chem. conv. 5½s.	1949	5½	M. N.	30,000,000
103	101	101⅛	104	101	102⅛	98	271	2,922	Am. Smelt & Ref. 1st. 5s. "A"	1947	5	A. O.	38,000,000
92⅛	79¾	...	98½	79¾	100	79	174	1,785	Anglo-Chilean s. f. deb. 7s.	1945	7	M. N.	16,500,000
103	101	101	103	100	103½	99⅛	94	761	Atlantic Refin. deb. 5s.	1937	5	J. J.	15,000,000
104	103	103½	105½	100½	103	98½	97	383	By-Prod. Coke 1st 5½s "A"	1945	5½	M. N.	8,000,000
103½	102½	103½	104½	97½	103	96½	23	231	Corn Prod. Refin. 1st s. f. 5s.	1934	5	M. N.	10,000,000
76⅛	60	65	87½	60	104	76	519	3,565	Lautaro Nitrate conv. 6s.	1954	6	J. J.	
100½	94	...	100½	94	100½	96	236	2,209	Pure Oil s. f. 5½% notes	1937	5½	F. A.	20,000,000
100½	93½	...	104	93¾	98⅛	90	194	1,014	Solvay Am. Invest. 5s.	1942	5	M. S.	
104½	103	104	104⅛	100	103½	100	590	4,939	Standard Oil, N. J. deb. 5s.	1946	5	F. A.	120,000,000
100½	99½	100	104½	98	100	91½	419	3,764	Standard Oil, N. Y. deb. 4½s.	1951	4½	J. D.	50,000,000
101½	98	99	102½	97½	110	88	71	845	Tenn. Copp. & Chem. deb. 6s. "B"	1944	6	M. S.	5,000,000
									NEW YORK CURB				
104⅜	103½	104	104⅞	101½	103½	99⅜	167,000	1,008,683	Aluminum Co., s. f. deb. 5s.	1952	5	M. S.	60,000,000
102	99½	100	104¼	97¼	98⅛	97⅜	153,000	1,060,500	Aluminum Ltd., 5s.	1948	5	J. J.	20,000,000
...	...	...	...	...	125	99			Amer. Solv. & Chem. 6½s.	1936	6½	M. S.	2,200,000
...	...	...	...	...	...	...			General Ind. Alc., 6½s.	1944	6½	M. N.	2,500,000
75⅛	64⅞	65	80	57	95	60	98,000	250,138	General Rayon 6s. "A"	1948	6	J. D.	5,400,000
103	101	101⅛	104	90½	101¼	97⅜	197,000	866,384	Gulf Oil, 5s.	1937	5	J. D.	35,000,000
103⅛	101	101⅛	104	100	...	...	155,000	824,342	Sinking Fund deb. 5s.	1947	5	F. A.	35,000,000
103	99⅞	101⅛	103½	95⅜	100½	93	159,000	622,631	Koppers G. & C. deb, 5s.	1947	5	J. D.	25,000,000
98⅜	96	96½	98⅜	90⅜	94⅜	88½	490,000	1,511,441	Shawinigan W. & P. 4½s.	1967	4½	A. O.	200,000,000
98⅜	96½	97	98⅜	90	...	...	204,000	4,095,510	4½s., series "B"	1968	4½	M. N.	25,000,000
100	96	98½	107	96	...	...	31,000	130,150	Silica Gel Corp. 6½s	1932	6½	A. O.	1,700,000
103½	100⅜	102½	103½	79½	102	97½	104,000	323,000	Swift & Co., 5s.	1944	5	J. J.	50,000,000
103	101½	102¼	103½	100½	104	98	16,000	44,000	Westvaco Chlorine Prod. 5½s.	1937	5½	M. S.	2,500,000

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ORANGE, N. J.

The Trend of Prices

Copper and Acetate of Lime Continue Weak

Response in Bichromates Fairly Satisfactory—Tartaric Acid Focal Point in Price Reductions—Producers Slightly More Optimistic.

Continued weakness in the copper market and acetate of lime featured the October chemical price structure. With metallic copper freely offered at 9½c, a further reduction in copper sulfate was announced, the new level being $3.95 a cwt. In a determined effort to clear the decks of unwieldy stocks leading producers have reduced acetate of lime still further, present quotations being based on $2.25 a cwt. In sympathy with this reduction of ¾c on lime, acetic acid prices were considerably weaker, 28% commercial now being quoted at $2.73 a cwt.

Producers of sulfuric and muriatic acids, aluminum sulfate, silicate of soda and bichromates are renewing contracts for 1931 at the levels of this year. The response specially in the case of bichromates is said to be fairly satisfactory with considerable tonnages already booked. Alkali producers announced on November 5 that the 1930 schedule would be repeated for 1931. A rather competitive situation has arisen in the tri-sodium phosphate market. Tartaric acid has been a focal point in price reductions and producers of cream of tartar have revised their schedules accordingly. Ethyl acetate prices were again lower and reflected a continuance of unsettled conditions in the solvent field.

Naval stores were in slightly better demand during the month and the price situation, specially in the better grades of rosin, showed some definite signs of stabilizing, but generally speaking the net result of price movements during the month were declines from September figures.

Trading in gums, waxes, greases and oils was light, buyers apparently preferring to await further definite developments before obligating themselves with future commitments of any appreciable size. Buying in most cases was on a strictly hand to mouth basis. The technical position of most of the gums is said to be better as stocks are low and even a slight improvement should reflect in a firmer tone to the market.

Producers in the chemical and allied industries appear slightly more optimistic than at this time a month ago. Actual orders for immediate shipment are in greater volume. However, broadly speaking the contract season is still in its infancy with both buyers and sellers moving slowly and cautiously, each endeavoring to call the turn in the market.

October closes with a rather confused state of affairs existing in business conditions. Retail trade and to some extent the jobbing business have experienced a slight betterment in demand, but in a broad sense, the revival of business has been along very restricted lines. Basic commodity markets and agricultural products were lower and manufacturing activity remains seriously curtailed at a time of the year when even the seasonal increase should be definitely felt.

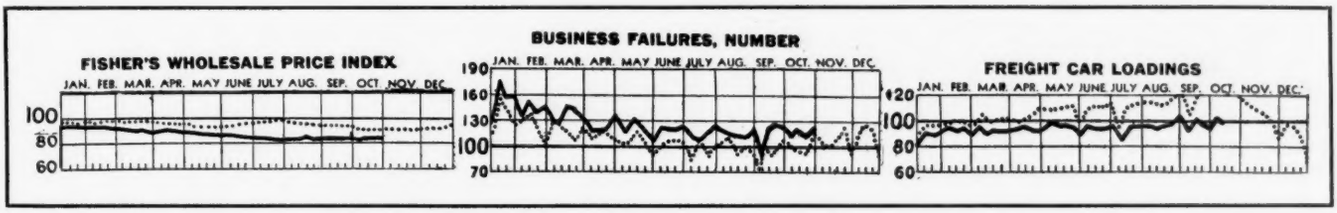
The trend of the stock market during the month was again disappointing to those who look to it for encouraging signs. The general course was towards further reductions with even high grade industrials registering repeatedly new lows for the year. The average for seventy industrial stocks at the close of the month as reported by the *Herald Tribune* shows the present level has reached the March 1928 figure while thirty railroad stocks are lower than at any time since the middle of 1926.

October was a disappointing month in the steel industry when in normal times it is one of the best. Tonnages were no better than during the preceding month and additional pessimism was added by the Steel Corporation's adverse quarterly report. Profits were just half when compared with the same period in 1929 and approximately sixteen million below 1928. Actual operations at steel mills are reported at only 55% of capacity a drop of 8% from July of this year.

Business failures according to Dun are more numerous for October than in the same month either in 1929 or 1928. The actual number, 2,124 with $56,296,577 in debts is up 80% from last October. Automobile production appears to be holding up fairly well but manufacturers have evidently consoled themselves to the fact that little progress can be hoped for previous to the turn of the year and the introduction of new models. The New York Times index of business activity shows a week to week decline throughout the month due to decreases in freight car loadings, steel mill activity, and electric power production standing at 82.5 on October 25 as compared with 84.1 at the close of September. Wholesale commodity prices are exhibiting further signs of weakening. The index of the National Fertilizer Association shows a net decline of 1.6 points for the month and a new low for the year. A slight change has taken place during the month in the money market, with rates at a higher level. The discount rate at New York remains at 2½% but commercial prime paper was being taken at 2¾-3% and ninety day bankers' acceptances 2-1⅞%.

Important Price Changes

Declines	October	September
Acid Acetic, 28% cl bbls. wks	$2.73	$3.11
Acid Tartaric, U. S. P. powdered	.32½	.34½
Calcium Acetate	2.25	3.00
Copper metal	.09½	.10
Copper sulfate	3.95	4.10
Cream of Tartar	.25½	.25½
Ethyl acetate, tanks	.088	.09
Lead Acetate bbl. wks	11.50	12.00
Sodium Bromide U. S. P	.38	.43
Tin Crystals	.26	.27
Tin Tetrachloride	.19½	.20½



Business indicators prepared by the Department of Commerce. The weekly average 1923-25 inclusive = 100. The solid line represents 1930 and the dotted line 1929.

Prices Current

Heavy Chemicals, Coaltar Products, Dye-and-Tanstuffs, Colors and Pigments, Fillers and Sizes, Fertilizer and Insecticide Materials, Naval Stores, Fatty Oils, etc.

Chemical prices quoted are of American manufacturers for spot New York, immediate shipment, unless otherwise specified. Products sold f. o. b. works are specified as such. Imported chemicals are so designated. Resale stocks when a market factor are quoted in addition to makers' prices and indicated "second hands."

Oils are quoted spot New York, ex-dock. Quotations f.o.b. mills, or for spot goods at the Pacific Coast are so designated.

Raw materials are quoted New York, f. o. b., or ex-dock. Materials sold f. o. b. works or delivered are so designated.

The current range is not "bid and asked," but are prices from different sellers, based on varying grades or quantities or both. Containers named are the original packages most commonly used.

Purchasing Power of the Dollar: 1926 Average—$1.00 - 1929 Average $1.039 - Jan. 1929 $1.026 - Oct. 1930 $1.203

Acetone — A somewhat improved tone was in evidence near the close of the month and producers were reporting a slight increase in shipments and greater activity in inquiries. Consumers continue to order in restricted quantities however. The rayon industry shows more healthy signs and some further additional improvement is expected from this quarter. Contract prices for 1931 are still unannounced.

Acid Acetic — Conditions in this market have been very unsettled during the month due to an announced reduction of ¾c on acetate of lime and false rumors of additional large tonnages of the lime being sold at $2.00. Effective Oct. 14, new prices were announced based on acetate of lime at $2.25 a cwt. Commercial grades 28% c. l.; bbls., $2.73 a cwt. to $2.98 for l. c. l.; carboys, $3.23 to $3.48; 56%, bbl., $5.10 to $5.35; carboys, $5.60 to $5.85; 60% bbls., $5.43 to $5.68; carboys, $5.93 to $6.18; 70% bbls., $6.25 to $6.50; carboys, $6.75 to $7.00; 80% bbls., $7.12 to $7.37; carboys, $7.62 to $7.87. Redistilled, 28%, bbls., $3.01 to $3.26; carboys, $3.51 to $3.76; 56%, bbls., $5.65 to $5.90; carboys, $6.15 to $6.40; 60%, bbls., $6.03 to $6.28; carboys, $6.53 to $6.78; 80%, bbls., $7.91 to $8.16; carboys, $8.41 to $8.66. Effective Oct. 20, Glacial 99½% was reduced to 8.98c per lb.; drums carload, 9.23c; l. c. l. drums 9.48c. U. S. P. Reagent 99.8% carboys carload, 9.73c and less carload, 9.98c per lb.

Acid Chromic — No abatement is apparent in the competitive position of this commodity. Continued curtailment in the automotive field and in other plating lines leaves a rather large manufacturing surplus. Spot prices remain unchanged and as yet, leading producers have withheld any announcement on contract renewals for next year.

Acid Cresylic — A better tone in the textile industry was said to be partly responsible for a slightly improved condition in this market. Withdrawals are in greater volume and prices remain unchanged.

Acid Formic — Prices are steady with better interest being in evidence specially from the tanning industry. Imports for first eight months total 440,008 lbs.

1929 High	1929 Low	1928 High	1928 Low		Current Market	1930 High	1930 Low
.21	.18½	.26	.18½	Acetaldehyde, drs 1c-1 wks...lb.	.18½	.21	.21	.18½
.31	.27			Acetaldol, 50 gal dr.....lb.	.27	.31	.31	.27
				Acetamide.....lb.	1.20	1.35	1.35	1.20
.24	.21	.24	.23	Acetanilid, tech, 150 lb bbl...lb.	.21	.23	.23	.21
				Acetic Anhydride, 92-95%, 100 lb cbys.....lb.	.25	.28	.29	.25
.35	.28	.35	.29	Acetin, tech drums.....lb.	.30	.32	.32	.30
.32	.30	.....	.....	Acetone.....lb.	.11	.12	.12	.11
.16	.11	.15	.13	Acetone Oil, bbls NY.....gal.	1.15	1.25	1.25	1.15
1.25	1.15	1.75	1.65	Acetyl Chloride, 100 lb cby...lb.	.55	.68	.68	.55
.68	.45	.45	.42	Acetylene Tetrachloride (see tetrachlorethane).....				
				Acids				
				Acid Acetic, 28% 400 lb bbls c-l wks.....100 lb.	.....	2.73	3.88	2.73
3.88	3.88	3.88	3.38	Glacial, bbl c-l wk.....100 lb.	.....	9.23	13.68	9.23
13.68	13.68	13.68	11.92	Glacial, tanks.....	.....	8.98	13.43	8.98
				Anthranilic, refd, bbls.....lb.	.98	1.00	1.00	.98
1.00	.98	1.00	.98	Technical, bbls.....lb.	.....	.80	.80	.80
.80	.80	.80	.80	Battery, cbys.....100 lb.	1.60	2.25	2.25	1.60
2.25	1.60	2.25	1.60	Benzoic, tech, 100 lb bbls....lb.	.43	.45	.53	.45
.60	.51	.60	.57	Boric, crys. powd, 250 lb. bbls.....lb.	.06½	.07½	.07½	.06½
.07½	.05½	.11	.08½	Broenner's, bbls.....lb.	.....	1.25	1.25	1.25
1.25	1.25	1.25	1.25	Butyric, 100% basis cbys.....lb.	.85	.90	.90	.85
.90	.85	.90	.85	Camphoric.....lb.	.....	5.25	5.25	5.25
5.25	4.85	4.85	4.85	Chlorosulfonic, 1500 lb drums wks.....lb.	.04½	.05½	.05½	.04½
.05½	.04½	.16	.15	Chromic, 99%, drs extra.....lb.	.15	.17	.19	.15
.23	.17½	.30	.25	Chromotropic, 300 lb bbls....lb.	1.00	1.06	1.06	1.00
1.06	1.00	1.06	1.00	Citric, USP, crystals, 230 lb. bbls.....lb.	.46	.59	.59	.46
.70	.46	.44½	.59	Cleve's, 250 lb bbls.....lb.	.52	.54	.54	.52
.59	.52	.97	.95	Cresylic, 95%, dark drs NY..gal.	.55	.60	.70	.55
.54	.60	.70	.68	97-99%, pale drs NY.....gal.	.60	.70	.77	.60
.77	.72	.72	.72	Formic, tech 90%, 140 lb. cby.....lb.	.10½	.12	.12	.10½
.12	.10½	.12	.11	Gallic, tech, bbls.....lb.	.60	.70	.55	.50
.12	.50	.55	.50	USP, bbls.....lb.	.....	.74	.74	.74
.55	.74	.74	.74	Gamma, 225 lb bbls wks.....lb.	.77	.80	.80	.77
.80	.74	1.06	1.00	H, 225 lb bbls wks.....lb.	.65	.70	.70	.65
.99	.80	.63	.57	Hydriodic, USP, 10% soln cby lb.	.....	.67	.67	.67
.72	.67	.67	.67	Hydrobromic, 48%, coml, 155 lb cbys wks.....lb.	.45	.48	.48	.45
.67				Hydrochloric, CP, see Acid Muriatic.....				
.48	.45	.48	.45	Hydrocyanic, cylinders wks...lb.	.80	.90	.90	.80
.....	.....			Hydrofluoric, 30%, 400 lb bbls wks.....lb.	.....	.06	.06	.06
.90	.80	.90	.80	Hydrofluosilicic, 35%, 400 lb bbls wks.....lb.	.....	.11	.11	.11
.06	.06	.06	.06	Hypophosphorous, 30%, USP, demijohns.....lb.	.....	.85	.85	.85
.11	.11	.11	.11	Lactic, 22%, dark, 500 lb bbls lb.	.04	.04½	.05	.04
.85	.85	.85	.85	44%, light, 500 lb bbls.....lb.	.11½	.12	.12	.11
.05½	.04½	.06	.04½	Laurent's, 250 lb bbls.....lb.	.40	.42	.42	.40
.12½	.11	.13½	.12	Malic, powd., kegs.....lb.	.45	.60	.60	.45
.42	.40	.54	.52	Metanilic, 250 lb bbls.....lb.	.60	.65	.65	.60
.60	.48	.60	.48	Mixed Sulfuric-Nitric.....				
.65	.60	.65	.60	tanks wks.....N unit	.07	.07½	.07½	.07
.07½	.07	.08	.07½	tanks wks.....S unit	.008	.01	.01	.008
.01	.008	.01½	.01	Monochloroacetic, tech bbl..lb.	.18	.21	.21	.18
.21	.18	.21	.18	Monosulfonic, bbls.....lb.	1.65	1.70	1.70	1.65
1.70	1.65	.65	.65	Muriatic, 18 deg, 120 lb cbys c-l wks.....100 lb.	.....	1.35	1.35	1.35
1.40	1.35	1.40	1.35	tanks, wks. 100 lb.		1.00	1.00	1.00
1.00	1.00			20 degrees, cbys wks...100 lb.	.....	1.45	....	1.45
....	1.45	1.80	1.70	N & W, 250 lb bbls.....	.85	.95	.95	.85
.95	.85	.95	.85	Naphthionic, tech, 250 lb.....	.....	Nom.	Nom.	.....
.59	.55	.59	.55	Nitric, 36 deg, 135 lb cbys c-wks.....100 lb.	.....	5.00	5.00	5.00
5.00	5.00	5.00	5.00	40 deg, 135 lb cbys, c-l wks.....100 lb.	.....	6.00	6.00	6.00
6.00	6.00	6 00	6.00	Oxalic, 300 lb bbls wks NY...lb.	.11	.11½	.11¾	.11
.11¾	.11	.11½	.10¾	Phosphoric 50%, U. S. P.....lb.	.....	.14	.14	.14
.14	.08	.08½	.08	Syrupy, USP, 70 lb drs....lb.	.....	.14	)	.14
.16	.14	.16	.16	Commercial, tanks.....Unit.	.....	.80	.80	.80
.....	.....			Picramic, 300 lb bbls.....lb.	.65	.70	.70	.65
.70	.65	.50	.50	Picric, kegs.....lb.	.30	.50	.50	.30
.50	.30	.50	.40	Pyrogallic, crystals.....				
				.....lb.	1.50	1.60	1.60	1.30
1.40	.86	.86	.86	Salicylic, tech, 125 lb bbl.....lb.	.33	.37	.37	.33
.42	.33	.32	.27	Sulfanilic, 250 lb bbls.....lb.	.15	.16	.16	.15
.16	.15	.16	.15	Sulfuric, 66 deg, 180 lb cbys 1c-1 wks.....100 lb.	1.60	1.95	1.95	1.60
1.95	1.60	1.95	1.60	tanks, wks. ton		15.00	15.50	15.00
15.50	15.50			1500 lb dr wks.....100 lb.	1.50	1.65	1.65	1.50
1.65	1.50	1.37½	1.20	60°, 1500 lb dr wks....100 lb.	1.27½	1.42½	1.42½	1.27½
1.42½	1.27½	1.12½	1.12½	Oleum, 20%, 1500 lb. drs 1c-1 wks .....ton	.....	18.50	18.50	18.50
18.50	18.50	18.50	18.50					

ANNOUNCING

SYNTHETIC ETHYL ETHER

Carbide and Carbon Chemicals Corporation takes pleasure in announcing the production of Synthetic Ethyl Ether from an entirely new source and by an entirely new process.

Unlike older manufacturing methods, this new process does not utilize ethyl alcohol as a raw material and, therefore, the price of ethyl ether should no longer be predicated upon the fluctuating cost of ethyl alcohol.

The availability of Synthetic Ethyl Ether at a new and stabilized price will be of very definite benefit to the older and more generally recognized uses of this product. On the other hand, it will now be feasible for manufacturers to consider products and processes that have hitherto been prohibitively costly, for example, the use of ethyl ether as a precipitating bath in the manufacture of cellulose acetate and in certain Grignard reactions that should now become commercially important.

Inquiries are invited.

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BUTYL CARBITOL ★	ETHYLENE GLYCOL
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CARBITOL ★	ISOPROPANOL
CARBOXIDE ★	ISOPROPYL ETHER
CELLOSOLVE ★	METHYL CELLOSOLVE ★
CELLOSOLVE ★ ACETATE	METHANOL
DICHLOR ETHYL ETHER	TRIETHANOLAMINE
DIETHYLENE GLYCOL	VINYL CHLORIDE
DIOXAN	VINYLITE ★ RESINS

BUTANE	ETHYLENE	ISOBUTANE
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Unit of Union Carbide UCC *and Carbon Corporation*

Prices Current and Comment

Purchasing Power of the Dollar: 1926 Average—$1.00 - 1929 Average $1.039 - Jan. 1929 $1.026 - Oct. 1930 $1.203

against 1,160,093 lbs. during the same period in 1929.

Acid Lactic — Tanners are absorbing larger quantities and prices are firm and unchanged.

Acid Muriatic — Contracts for 1931 are being taken at prices current this year. Producers report both spot and future shipments are satisfactory.

Acid Oxalic — Prices are firm and unchanged. A satisfactory amount of tonnage is moving forward at 11-11½c price basis. Consumption so far on the part of the coal companies has not met early expectations. Producers are in a much better position to take care of any extra needs that may occur and the acute shortage of a year ago is unlikely to be repeated.

Acid Sulfuric — Leading producers announce renewals of contracts for 1931 on the same basis as that prevailing this year. A fair amount of tonnage has been booked ahead at this early date. Production by fertilizer companies during August totalled 172,667 tons compared with 150,158 tons in July and 183,443 tons during August, 1929. For the first eight months' production amounted to 1,436,941 tons compared with 1,404,730 tons in the same period a year ago. Consumption in making fertilizers amounted to 184,319 tons in July against 200,863 tons in July and 206,645 tons in August a year ago. For the first eight months 1,956,174 tons were used as against 1,591,720 tons in 1929. Stocks on hand at the close of the eight months period totalled 94,584 tons compared with 86,316 tons at the close of July and 91,455 tons in August, 1929.

Acid Tartaric — Competitive conditions continue to rule this market. Effective Oct. 14, prices on U. S. P. granular, powdered and crystal were reduced ½c and on Oct. 20, a further reduction of ½c was announced, bringing the price level down to 33½c for granular and powdered and 34c for crystal. Stocks of imported are reported to be large. On Oct. 31, a further reduction of powdered to 32½c and crystal to 33c was announced by domestic producers.

Alcohol — A general revival in many lines as well as unseasonal cold weather in many parts of the country has served to speed up shipments considerably. Producers report anti-freeze tonnage as very satisfactory for this time of the year. The competitive position has eased slightly. Large consumers are now entering the market in greater numbers than at any time in the last six months.

Aluminum Sulfate — Producers announced during the month that contracts r the ensuing year were being solicited

1929 High	1929 Low	1928 High	1928 Low		Current Market	1930 High	1930 Low
42.00	42.00	42 00	42.00	40%, 1c-1 wks net ....ton	.....	42.00	42.00
.40	.30	.40	.30	Tannic, tech, 300 lb bbls...lb.	.30	.40	.40
.38½	.38	.38	.34½	Tartaric, USP, crys, powd, 300 lb. bbls.....lb	.33½	.35	.38½
.85	.85	.85	.85	Tobias, 250 lb bbls.....lb.	.....	.85	.85
2.75	2.75	2.75	2.75	Trichloroacetic bottles.....lb.	.....	2.75	2.75
2.00	2.00	2.00	2.00	Kegs.....lb.	.....	2.00	2.00
2.25	1.00	1.25	1.00	Tungstic, bbls.....lb.	1.40	1.70	1.70
47	.38	.55	.43	Albumen, blood, 225 lb bbls..lb.	.38	.40	.40
.20	.12			dark.....bbls., lb.	.12	.20	.20
.83	.70	.84	.78	Egg, edible.....lb.	.....	.70	.75
.80	.70	.80	.70	Technical, 200 lb cases ..lb.	.65	.70	.73
.65	.60	.65	.60	Vegetable, edible.....lb.	.60	.65	.65
.55	.50	.55	.50	Technical.....lb.	.50	.55	.55
				Alcohol			
.17½	.17½	.20	.18½	Alcohol Butyl, Normal, 50 gal drs c-1 wks.....lb.	.17½	.18½	.18½
.18½	.17½	.19½	.18½	Drums, 1-c-1 wks.....lb.	.17½	.18½	.18½
.17½	.16½	.19	.17½	Tank cars wks.....lb.	.16½	.17½	.17½
1.67	1.67	2.25	1.75	Amyl (from pentane) Tanks wks.....lb.	.....	.236	.236
1.80	1.42	1.80	1.70	Diacetone, 50 gal drs del..gal.	1.42	1.60	1.60
2.75	2.69½	3.70	2.65	Ethyl, USP, 190 pf, 50 gal bbls.....gal.	2.63	2.75	2.75
.71	.71	.55	.50	Anhydrous, drums.....gal.	.56	.60	.71
.52	.49	.52	.48½	Completely denatured, No. 1, 188 pf, 50 gal drs drums extra.....gal.	.40	.44	.51
.51	.48	.50	.43	No. 5, 188 pf, 50 gal drs. drums extra.....gal.	.40	.44	50
.50	.46	.46	.41	Tank, cars.....gal.	.37	.38	.48
1.30	1.00	1.25	1.00	Isopropyl, ref, gal drs.....gal.	.60	1.00	1.00
1.00	1.00	1.00	1.00	Propyl Normal, 50 gal dr..gal.	.....	1.00	1.00
.82	.80	.82	.80	Aldehyde Ammonia, 100 gal dr lb.	.80	.82	.82
.65	.65	.65	.65	Alpha-Naphthol, crude, 300 lb bbls.....lb.	.....	.65	.65
.34	.32	.37	.35	Alpha-Naphthylamine, 350 lb bbls.....lb.	.32	.34	.34
3.50	3.25	3.30	3.25	Alum Ammonia, lump, 400 lb bbls, 1c-1 wks.....100 lb.	3.20	3.50	3.50
5.50	5.00	5.50	5.25	Chrome, 500 lb casks, wks .....100 lb.	4.50	5.25	5.25
3.50	3.00	3.20	3 10	Potash, lump, 400 lb casks wks.....100 lb.	3.10	3.50	3.50
3.75	3.75	3.75	3.75	Soda, ground, 400 lb bbls wks.....100 lb.	.....	3.75	3.75
24.30	24.30	26.00	24.30	Aluminum Metal, c-1 NY.100 lb.	.....	24.30	24.30
.20	.05	.40	.35	Chloride Anhydrous,.....lb.	.05	.15	.15
.18	.17	.18	.17	Hydrate, 96%, light, 90 lb bbls.....lb.	.17	.18	.18
.26	.25	.24	.18	Stearate, 100 lb bbls.....lb.	.24½	.25½	.26
2.05	1.95	1.75	1.75	Sulfate, Iron, free, bags c-1 wks.....100 lb.	1.95	2.05	2.05
1.40	1.40	1.40	1.40	Coml, bags c-1 wks..100 lb.	.....	1.40	1.40
1.15	1.15	1.15	1.15	Aminoazobenzene, 110 lb kegs lb.	.....	1.15	1.15
				Ammonium			
				Ammonia anhydrous Com. tanks	.....	.05½	.05½
.14½	.14	.14	.13½	Ammonia, anhyd, 100 lb cyl..lb.	.15½	.15½	.15½
.03½	.03½	.03	.03	Water, 26°, 800 lb dr del...lb.	.....	.03½	.03½
				Ammonia, aqua 26° tanks....	.02½	.02¾	.02¾
				Acetate.....lb.	.28	.39	.39
6.50	5.15			Bicarbonate, bbls., f.o.b. plant .....100 lb.	.....	5.15	5.15
.22	.21	.22	.21	Bifluoride, 300 lb bbls.....lb.	.21	.22	.22
.12	.09	.09	.08½	Carbonate, tech, 500 lb cs..lb.	.09	.12	.12
5.15	4.45	5.15	4.45	Chloride, white, 100 lb. bbls wks.....100 lb.	4.45	5.15	5.15
5.75	5.25	5.75	5.25	Gray, 250 lb bbls wks....lb.	5.25	5.75	5.75
.11½	.11	.11½	.11	Lump, 500 lb cks spot...lb.	.11	.11½	.11½
.16	.15	.16	.15	Lactate, 500 lb bbls.....lb.	.15	.16	.16
.10	.06	.10	.06	Nitrate, tech, casks.....lb.	.06	.10	.10
.34	.26	.38	.27½	Persulfate, 112 lb kegs.....lb.	.26	.30	.30
.13	.12½	.18	.18	Phosphate, tech, powd, 325 lb bbls.....lb.	.11½	.12	.13
2.40	2.05	2.90	2.20	Sulfate, bulk c-1.....100 lb.	.....	2.05	2.10
2.45	2.05	3.00	2.50	Southern points.....100 lb.	.....	1.92½	2.10
60.85	52.40	60.85	60.85	Nitrate, 26% nitrogen 31.6% ammonia imported bags c. i. f.....ton	.....	57.60	57.60
.48	.36	.60	.55	Sulfocyanide, kegs.....lb.	.36	.48	.48
1.70	1.60	2.25	1.72	Amyl Acetate, (from pentane) Tanks.....lb.	.....	.222	.236
.24	.23	.....	.....	Tech., drs.....lb.	.225	.236	.24
				Alcohol, see Fusel Oil.....			
				Furoate, 1 lb tins.....lb.		5.00	5.00
.16½	.15	.16½	.15½	Aniline Oil, 960 lb drs.....lb.	.15	.16	.16
.37	.34	.48	.41	Annatto, fine.....lb.	.34	.37	.37
.90	.80	1.00	.90	Anthraquinone, sublimed, 125 lb bbls.....lb.	.50	.55	.90
.10	.08½	.12	.09½	Antimony, metal slabs, ton lots .....lb.	.06½	.07	.09½
.10	.09	.12	.10	Needle, powd, 100 lb cs....lb.	.....	.08	.09½
.18	.13	.18	.17	Chloride, soln (butter of) cbys.....lb.	.13	.17	.17
.10	.08½	.12	.09½	Oxide, 500 lb bbls.....lb.	.08½	.08½	.08½
.26	.24	.....	.....	Salt, 66%, tins.....lb.	.....	.24	.24
.20	.16	.20	.16	Sulfuret, golden, bbls.....lb.	.16	.20	.20
.42	.38	.42	.38	Vermilion, bbls.....lb.	.38	.42	.42
.19	.17	.19	.17	Archil, conc, 600 lb bbls.....lb.	.17	.19	.19
.14	.12	.14	.12	Double, 600 lb bbls.....lb.	.12	.14	.14
.16	.12	.16	.15	Triple, 600 lb bbls.....lb.	.12	.14	.14
.18½	.18½	.16	.15	Argols, 80%, casks.....lb.	.....	.18½	.18½
.08	.08	.08	.08	Crude, 30%, casks.....lb.	.08	.08	.08
.....	.....			Aroclors, wks.....lb.	.20	.40	.40

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Prices Current and Comment

Purchasing Power of the Dollar: 1926 Average—$1.00 - 1929 Average $1.039 - Jan. 1929 $1.026 - Oct. 1930 $1.203

on the basis of this year's prices. The paper industry are entering the market in better volume. No prices for the ammonia or potash alums have as yet been made but indications point to renewals at unchanged price levels.

Ammonia Anhydrous — Some seasonal slackening in the demand is noticeable at this time but prices are in a very firm position. No announcement as yet has been made on 1931 contract schedules.

Ammonia Aqua — Some competition has been in evidence due to reduced schedules in the textile centers and from bottlers, but prices are in a fairly stable position.

Ammonium Chloride — Consumers are again back in the market and demand is fairly brisk, with shipments, under existing contracts, showing a decided improvement over the apathy of the summer months. Dry battery manufacturers are specially active and galvanizers are taking their usual quantities.

Ammonium Sulfate — While the published price schedule for November calls for $38.50 a ton, indications are, that on large tonnages, this price was being shaded slightly. The total volume of tonnages have been rather disappointing.

Arsenic — Continued firmness in the price structure prevailed throughout the month. With operations at the refineries at lower levels reserve stocks are reported as being lower than at any time in the past six months. Sellers appear to be of the opinion, however, that no change in price is probable at least for some time.

Barytes — Domestic producers are adhering strictly to established levels with sales and shipments are being made in normal volume.

Beeswax — Sales locally were being made at the 26c a lb. level with dealers resisting any effort on the part of purchasers towards obtaining concessions from the established price. Cables from abroad indicate a strong position with light offerings.

Bleaching Powder — While consumers are buying in restricted quantity the total volume of sales as reported by producers appears quite satisfactory. Prices are being well maintained at $2-$2.35 a cwt. at the works depending upon quantity.

Bromides — An important reduction of U. S. P. bromides was placed in effect Oct. 25. In most cases the reduction amounted to 5c a lb., potassium now being quoted at 38c for both the granular and crystal grades, ammomium 44c; sodium 38c; strontium bromide 46c a lb.

Butyl Acetate — A slight reduction has brought the present price level down

1929 High	1929 Low	1928 High	1928 Low		Current Market	1930 High	1930 Low
.11	.09	.11	.10½	Arsenic, Red. 224 lb kegs, cs..lb.	.09¾	.10	.11	.08¾
.04½	.04	.04	.03¼	White, 112 lb kegs.....lb.	.03¾	.04½	.04½	.03¾
15.00	4.75	14.75	14.75	Asbestine, c-1 wks.....ton	.....	15.00	15.00	15.00
				Barium				
				Barium Carbonate, 200 lb bags				
60.00	57.00	57.00	47.00	wks.....ton	58.00	60.00	60.00	58.00
.15	.14	.12½	.12	Chlorate, 112 lb kegs NY..lb.	.14	.15	.15	.14
69.00	63.00	65.00	54.00	Chloride, 600 lb bbl wks...ton	63.00	69.00	69.00	63.00
.13	.12	.13½	.13	Dioxide, 88%, 690 lb drs...lb.	.12	.13	.13	.12
.05½	.04¾	.04¾	.04¾	Hydrate, 500 lb bbls.....lb.	.04¾	.05½	.05½	.04¾
.08½	.08	.08	.07½	Nitrate, 700 lb casks.....lb.	.08	.08½	.08½	.08
				Barytes, Floated, 350 lb bbls				
24.00	23.00	24.00	23.00	wks.....ton	23.00	24.00	24.00	23.00
8.00	5.00	8.00	5.00	Bauxite, bulk, mines.....ton	5.00	8.00	8.00	5.00
.37	.34	.38	.36	Beeswax, Yellow, crude bags..lb.	.24	.31	.34	.24
.42	.39	.43	.41	Refined, cases.....lb.	.....	.37	.38	.37
.53	.51	.58	.56	White, cases.....lb.	.34	.36	.53	.34
				Benzaldehyde, technical, 945 lb				
.65	.60	.70	.65	drums wks.....lb.	.60	.65	.65	.60
				Benzene				
				Benzene, 90%, Industrial, 8000				
.23	.23	.23	.21	gal tanks wks.....gal.	.....	.21	.22	.21
.23	.23	.23	.21	Ind. Pure, tanks works....gal.	.....	.21	.22	.21
				Benzidine Base, dry, 250 lb				
.74	.70	.74	.70	bbls.....lb.	.65	.67	.74	.65
1.00	1.00	1.00	1.00	Benzoyl, Chloride, 500 lb drs.lb.	.....	1.00	1.00	1.00
.25	.25	.25	.25	Benzyl, Chloride, tech drs....lb.	.....	.25	.25	.25
.26	.22	.26	.24	Beta-Naphthol, 250 lb bbl wk.lb.	.22	.24	.24	.22
				Naphthylamine, sublimed, 200				
1.35	1.35	1.35	1.35	lb bbls.....lb.	.....	1.35	1.35	1.35
.68	.60	.65	.63	Tech, 200 lb bbls.....lb.	.53	.65	.65	.53
90.00	75.00	90.00	80.00	Blanc Fixe, 400 lb bbls wks..ton	75.00	90.00	90.00	75.00
				Bleaching Powder				
				Bleaching Powder, 300 lb drs				
2.25	2.00	2.25	2.25	c-1 wks contract.....100 lb.	2.00	2.35	2.35	2.00
4.60	3.90	5.25	4.65	Blood, Dried, fob, NY.....Unit	.....	3.25	3.90	3.25
5.00	4.40	5.35	4.75	Chicago.....Unit	.....	3.75	4.50	3.75
4.70	4.25	5.05	4.50	S. American shipt.....Unit	.....	3.50	4.10	3.50
				Blues, Bronze Chinese Milori				
.35	.32	.35	.31	Prussian Soluble.....lb.	.....	.35	.35	.35
42.00	39.00	30.00	29.00	Bone, raw, Chicago.....ton	.....	39.00	39.00	39.00
.07	.06	.07	.06	Bone, Ash, 100 lb kegs.....lb.	.06	.07	.07	.06
.08½	.08½	.08½	.08½	Black, 200 lb bbls.....lb.	.....	.08½	.08½	.08½
35.00	30.00	37.00	31.00	Meal, 3% & 50%, Imp....ton	.....	31.00	31.00	31.00
.03¼	.02½	.05	..2½	Borax, bags.....lb.	.02½	.03¼	.03¼	02½
.14	.10½	.12	.10½	Bordeaux, Mixture, 16% pwd..lb.	.12	.14	.14	.12
.14	.10	.10	.08	Paste, bbls.....lb.	.12	.14	.14	.12
28.00	26.00	28.00	26.00	Brazilwood, sticks, shpmt....lb.	26.00	28.00	28.00	26.00
				Bromine, cases.....lb.	.38	.45	.47	.38
1.20	.60	1.20	.60	Bronze, Aluminum, powd blk.lb.	.60	1.20	1.20	.60
1.25	.55	1.25	.55	Gold bulk.....lb.	.55	1.25	1.25	.55
				Butyl, Acetate, normal drs..				
.195	.184	1.60	1.40	..... lb.	.176	.187	.20	.176
.186	.181	1.55	1.35	Tank, wks.....lb.	.17	.175	.186	.17
.70	.34	.70	.70	Aldehyde, 50 gal drs wks...lb.	.34	.44	.44	.34
				Carbitol s ee Diethylene Glycol				
.....	.....			Mono (Butyl Ether).....	.....	.....	.....	.....
				Cellosolve (see Ethylene glycol				
				mono butyl ether).....				
.50	.50			Furoate, tech., 50 gal. dr., lb.	.....	.50	.50	.50
.36	.25	.36	.34	Propionate, drs.....lb.	.25	.27	.27	.25
.60	.25	.60	.60	Stearate, 50 gal drs.....lb.	.25	.30	.30	.25
.60	.57	.60	.57	Tartrate, drs.....lb.	.57	.60	.60	.57
1.75	.75	2.00	1.35	Cadmium, Sulfide, boxes.....lb.	.90	1.40	1.75	.90
				Calcium				
				Calcium, Acetate, 150 lb bags				
4.50	4.50	4.50	3.50	c-1.....100 lb.	.....	2.25	4.50	2.25
				Arsenate, 100 lb bbls c-1				
.09	.07	.09	.06	wks.....lb.	.07	.09	.09	.07
.06	.05	.06	.05	Carbide, drs.....lb.	.05	.06	.06	.05
				Carbonate, tech, 100 lb bags				
1.00	1.00	1.00	1.00	c-1.....lb.	1.00	1.00	1.00	1.00
				Chloride, Flake, 375 lb drs				
25.00	22.75	27.00	25.00	c-1 wks.....ton	.....	22.75	22.75	22.75
				Solid, 650 lb drs c-1 fob wks				
20.00	20.00	23.00	20.00	.....ton	20.00	20.00	20.00	20.00
52.00	42.00	52.00	52.00	Nitrate, 100 lb bags.....ton	42.00	43.00	43.00	42.00
1.25	1.25	.....	.....	Peroxide, 100 lb. drs.....lb.	.....	1.25	1.25	1.25
.08	.07	.08	.07	Phosphate, tech, 450 lb bbls lb.	.08	.08¾	.08¾	.08
.26	.25			Stearate, 100 lb bbls.....lb.	.25	.26	.26	.25
88.15	82.15			Calurea, bags S. points. c.i.f. ton	.....	88.65	88.65	88.65
.18	.18	.18	.18	Camwood, Bark, ground bbls..lb.	.....	.18	.18	.18
.24	.22	.28	.22	Candelilla Wax, bags.....lb.	.15½	.17	.20	.15½
				Carbitol, (See Diethylene Gycol				
.....	.....			Mono Ethyl Ether).....	.....	.....	.....	.....
				Carbon, Decolorizing, 40 lb bags				
.15	.08	.15	.08	c-1.....lb.	.08	.15	.15	.08
				Black, 100-300 lb cases 1c-1				
.12	.12	.12	12	NY.....lb.	.06	.12	.12	.06
				Bisulfide, 500 lb drs 1c-1				
.06	.05½	.06	.05½	NY.....lb.	.05½	.06	.06	.05½
.06	.06	.06	.06	Dioxide, Liq. 20-25 lb cyl...lb.	.....	.06	.06	.06
				Tetrachloride, 1400 lb drs				
.07½	.06½	.07½	07	delivered.....lb.	.06½	.07	.07	.06½
.43	.35	.58	.45	Carnauba Wax, Flor, bags....lb.	.30	.34	.37	.30
.40	.33	.60	.40	No. 1 Yellow, bags.....lb.	.27	.28	.33	.26
.32	.28	.38	.34	No. 2 N Country, bags.....lb.	.23	.25	.27	.23
.36	.31	.56	.38	No. 2 Regular, bags.....lb.	.23	.27	.30	.23
.25	.24	.32	.25	No. 3 N. C.....lb.	.20	.21½	.23	.17
.26	.24	.32	25½	No. 3 Chalky.....lb.	.18	.19	.23	.17
.17	.15	.18¼	.14½	Casein, Standard, ground.....lb.	.12	.13	.15½	.12

Smell Appeal Is New Art In Modern Merchandising
(By Associated Press.)
HAMILTON, N. Y., July 10.—Early arrival of a new era of sweet smells was forecast today by Dr. Ronald A. Laird head of the department of
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Purchasing Power of the Dollar: 1926 Average—$1.00 - 1929 Average $1.039 - Jan. 1929 $1.026 - Oct. 1930 $1.203

to 17c for tanks at the works, drums in carlots .176c. Little change is apparent in demand and shipments are still reflecting the curtailment in the lacquer industry.

Butyl Alcohol — Satisfactory volume was being maintained at firm prices.

Calcium Acetate — Continued uneasiness prevailed during the month. On Oct. 10, leading factors announced reduction of ¾c bringing the price level down to $2.25 a cwt. Later a few sales as low as $2.00 were rumored to have been made on distressed lots and involving large tonnages but the greater portion of shipments were undoubtedly being made on a $2.25 basis. Production in the past few months has been curtailed considerably and stocks are not accumulating with the same degree of rapidity as was the case earlier in the year. The highly competitive position existing between the synthetic and natural producers of acetic acid has been eased somewhat by the latest reduction of lime. Acetate of lime prices are now just half of what they were as late as May of this year and further reductions appear unlikely. Considering wages and other factors, the lime market is very close to the lowest levels of 1908-09, 1914 and 1921, when the price reached $1.50 a cwt. Producers report a fair increase in tonnage booked at the new level.

Calcium Chloride — Shipments have fallen considerably below the summer schedule, but producers appear satisfied with the tonnages moving into the refrigeration and coal trades. Stocks are said to be low and prices are being well maintained.

Calcium Citrate — Rumors of lower prices abroad did not have any unsettling effect on domestic market and producers report normal shipments for this time of the year.

Carnauba Wax — Advices from abroad pointed to a rather depleted condition of stocks in primary markets and this combined with a definite improvement in demand here resulted in considerable firmness. Quotations for No. 1 were advanced to 27c-28c; No. 2 grades are nominal at the moment; No. 3 North country 20c-20½c; No. 3 chalky 18c-19c. Just what effect the present revolution in Brazil will have on the market is not as yet evidenced but some uneasiness is felt in some quarters as to future shipments being received with any degree of regularity for at least a month.

Carbon Black — Demand for pigments still remains at a low ebb. Spot prices for black were again weak being quoted at 6-13c depending upon maker

1929 High	1929 Low	1928 High	1928 Low		Current Market	1930 High	1930 Low
				Cellosolve (see Ethylene glycol mono ethyl ether)			
				Acetate (see Ethylene glycol mono ethyl ether acetate)			
.30	.20	.30	.26	Celluloid, Scraps, Ivory cs....lb.	.....	.20	.20	.20
.20	.18	.20	.18	Shell, cases.....lb.	.18	.20	.20	.18
.32	.15	.32	.30	Transparent, cases.....lb.	.....	.15	.15	.15
1.25	1.20	1.40	1.40	Cellulose, Acetate, 50 lb kegs .lb.	1.05	1.25	1.25	1.05
.03¾	.03	.03¾	.03	Chalk, dropped, 175 lb bbls...lb.	.03	.03¾	.03¾	.03
.03½	.02	.04½	.04½	Precip, heavy, 560 lb cks...lb.	.02	.03½	.03½	.02
.03½	.02½	.03½	.02½	Light, 250 lb casks.....lb.	.02½	.03½	.03½	.02½
.19	.18	.19	.18	Charcoal, Hardwood, lump, bulk wks.....bu.	.18	.19	.19	.18
.06½	.06	.06½	.06	Willow, powd, 100 lb bbl wks.....lb.	.06	.06½	.06½	.06
.05	.04	.05	.04	Wood, powd, 100 lb bbls...lb.	.04	.05	.05	04
.02	.03½	.03	.02	Chestnut, clarified bbls wks,..lb.	.02½	.03	.03	.02½
.02½	.01½	.02	.01½	25% tks wks.....lb.	.01¾	.02½	.02½	.01¾
.04 5/8	.04½	.04 5/8	.04 1/8	Powd, 60%, 100 lb bgs wks.lb.	.....	.04½	.04½	.04½
.06	.05½	.06	.05½	Powd, decolorized bgs wks..lb.	.05½	.06	.06	.05½
9.00	8.00	9.00	8.00	China Clay, lump, blk mines.ton	8.00	9.00	9.00	8.00
.02	.01½	.02	.01½	Powdered, bbls.....lb.	.01½	.02	.02	.01½
12.00	10.00	12.00	10.00	Pulverized, bbls wks.....ton	10.00	12.00	12.00	10.00
25.00	15.00	25.00	15.00	Imported, lump, bulk.....ton	15.00	25.00	25.00	15.00
.03½	.01½	.03½	.03	Powdered, bbls.....lb.	.01½	.03	.03	.01½
				Chlorine				
.08½	.07	.09	.08	Chlorine, cyls 1c-1 wks contract .....lb.	.07½	.08½	.08½	.07½
.04½	.04½	.. ..	.....	cyls, cl wks,. contract ...lb.	.....	.04½	.04½	.04½
.03	.025	.03½	.03½	Liq tank or multi-car lot cyls wks contract.....lb.	.025	.025	.025	.025
.10½	.08½	.07	.07	Chlorobenzene, Mono, 100 lb. drs 1c-1 wks.....lb.	.10	.10½	.10½	.10
.20	.16	.22	.20	Chloroform, tech, 1000 lb drs..lb.	.15	.16	.16	.15
1.35	1.00	1.35	1.00	Chloropicrin, comml cyls.....lb.	1.00	1.35	1.35	1.00
.29	.26	.29	.26	Chrome, Green, CP.....lb.	.26	.29	.29	.26
.11	.06½	.11	.06½	Commercial.....lb.	.06½	.11	.11	.06½
.18	.15	.17	.15½	Yellow.....lb.	.16	.18	.18	.16
.05¾	.04¾	.05¾	.04¾	Chromium, Acetate, 8% Chrome bbls.....lb.	.04¾	.05¾	.05¾	.04¾
.05½	.05½	.05½	.05½	20° soln, 400 lb bbls.....lb.	.....	.05½	.05½	.05½
.28	.27	.28	.27	Fluoride, powd, 400 lb bbl..lb.	.27	.28	.28	.27
.35½	.34½	.35½	.34½	Oxide, green, bbls.....lb.	.34½	.35½	.35½	.34½
10.50	10.00	9.50	9.00	Coal tar, bbls.....bbl	10.00	10.50	10.50	10.00
2.22	2.10	2.22	2.10	Cobalt Oxide, black, bags....lb.	2.10	2.22	2.22	2.10
1.01	.95	.87	.84	Cochineal, gray or black bag..lb.	.95	1.01	1.01	.95
.95	.95	.86	.86	Teneriffe silver, bags.....lb.	.....	.95	.95	.95
				Copper				
24.00	17.00	17.00	12.90	Copper, metal, electrol...100 lb.	.....	9.50	17.78	9.50
.25	.13	.17¾	.16	Carbonate, 400 lb bbls.....lb.	.08½	.16½	.21½	.08½
.28	.25	.28	.28	Chloride, 250 lb bbls.....lb.	.25	.28	.28	.25
.60	.44	.50	.48	Cyanide, 100 lb drs.....lb.	.41	.42	.45	.41
.32	.16½	.17	.16½	Oxide, red, 100 lb bbls.....lb.	.24	.32	.32	.24
.19	.18	.19	.18	Sub-acetate verdigris, 400 lb bbls.....lb.	.18	.19	.19	.18
7.00	5.50	5.50	5.05	Sulfate, bbls c-l wks...100 lb.	.....	3.95	5.50	3.95
14.00	13.00	14.00	13.00	Copperas, crys and sugar bulk c-l wks.....ton	13.00	14.00	14.00	13.00
.42	.40	.42	.40	Cotton, Soluble, wet, 100 lb bbls.....lb.	.40	.42	.42	.40
.....	.....	.....	.....	Cottonseed, S. E. bulk c-l...ton	.....	.....	.....	.....
.....	.....	.....	.....	Meal S. E. bulk.....ton	.....	.....	.....	.....
38.00	37.50	38.00	36.00	7% Amm., bags mills...ton	37.50	38.00	38.00	37.50
.28	26½	.27½	.26	Cream Tartar, USP, 300 lb. bbls.....lb.	.25½	.25½	.27	.25½
.42	.40½	.42	.40	Creosote, USP, 42 lb cbys....lb.	.40	.42	.42	.40
.19	.15	.19	.17	Oil, Grade 1 tanks.....gal.	.15	.16	.16	.15
.23	.13	.23	.21	Grade 2.....gal.	.13	.14	.14	.13
.28	.13	.28	.25	Grade 3.....gal.	.13	.14	.14	.13
.17	.14	.20	.17½	Cresol, USP, drums.....lb.	.14	.17	.17	.14
.36	.32			Crotonaldehyde, 50 gal dr....lb.	.32	.36	.36	.32
.17	.16	.17	.16	Cudbear, English.....lb.	.16	.17	.17	.16
.16	.12½	.18½	.18½	Cutch, Rangoon, 100 lb bales..lb.	.12½	.13	.13	.12½
.08½	.08	.07	.06	Borneo, Solid, 100 lb bale..lb.	.08	08½	.08½	.08
2.00	2.00	1.75	1.67½	Cyanamide, bulk c-l wks Nitrogen unit.....	.....	1.39	2.00	1.39
4.92	4.62	5.12	3.77	Dextrin, corn, 140 lb bags.100 lb.	4.42	4.72	4.82	4.42
4.87	4.57	5.07	3.72	White, 140 lb bags.....100 lb.	4.37	4.67	4.77	4.37
.09	.08	.09	.08	Potato, Yellow, 220 lb bgs..lb.	.08	.09	.09	.08
.09	.08	.09	.08	White, 220 lb bags 1c-l....lb.	.08	.09	.09	.08
.08½	.08	.08½	.08	Tapioca, 200 lb bags 1c-l...lb.	.08	.08½	.08½	.08
3.80	3.80	3.80	3.80	Diamylphthalate, drs wks...gal.	.....	3.80	3.80	3.80
3.10	2.70	2.90	2.85	Dianisidine, barrels.....lb.	.....	2.70	2.70	2.70
.26½	.26½	.28	.26½	Dibutylphthalate, wks.....lb.	.25½	.28	.28	.25½
.31½	.29½	.31½	.29½	Dibutyltartrate, 50 gal drs....lb.	.29½	.31½	.31½	.29½
.13	.05	.....	...	Dichloroethylether, 50 gal drs lb.	.....	.06	.07	.05
.65	.55	.65	.55	Dichloromethane, drs wks....lb.	.55	.65	.65	.55
3.00	2.75	.25	.23	Diethylamine, 400 lb drs.....lb.	2.75	3.00	3.00	2.75
1.90	1.85	2.15	2.15	Diethylcarbonate, drs .....gal.	1.85	1.90	1.90	1.85
.60	.55	2.00	1.85	Diethylaniline, 850 lb drs.....lb.	.55	.60	.60	.55
.13	.10	.60	.55	Diethyleneglycol, drs.....lb.	.14	.16	.13	.10
.15	.13	.15	.10	Mono ethyl ether, drs....lb.	.....	.16	.16	.13
.30	.25	.35	.25	Mono butyl ether, drs....lb.	.28	.30	.30	.28
.50	.50	.....	.....	Diethylene oxide, 50 gal dr....lb.	.....	.50	.50	.50
.67	.64	.67	.64	Diethylorthotoluidin, drs.....lb.	.64	.67	.67	.64
.26	.24	.26	.24	Diethyl phthalate, 1000 lb drums.....lb.	.24	.26	.26	.24
.35	.30	.35	.30	Diethylsulfate, technical, 50 gal drums.....lb.	.30	.35	.35	.30
2.62	2.62	2 62	2.62	Dimethylamine, 400 lb drs....lb.	.....	2.62	2.62	2.62
.32	.26	.32	.30	Dimethylaniline, 340 lb drs...lb.	.26	.28	.28	.26

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Carbon Tetrachloride — This commodity has been little affected by curtailment and its increasing number of uses as a solvent has prevented any accumulation of stocks. Prices remain unchanged 6¼c-7c a lb.

Casein — Argentine material was reduced 1c during the last week in the month. Actual sales are limited to small quantities with buyers showing little interest in forward commitments.

Chlorine — The prolonged competitive condition in this market continues despite a better inquiry and rate of shipment from the paper field. Possible production is so far in advance of present needs that little change appears likely for some time.

Chrome Colors — With bichromate prices for 1931 announced as unchanged little likelihood of any reduction seemed certain until further weakness occurred in the lead market which tended to unsettle the market for colors.

Copperas — Due to the serious curtailment in the steel industry which furnishes copperas as a by-product stocks are at a low ebb and prices are firm with a strong possibility of an early increase. Shipments over the first nine months are said to be only 5% below 1929.

Copper — The metal remains in a very weak price condition. Early in the month a reduction of ¼c brought the level down to 9¾c and on Oct. 24, customer smelters were openly taking business on a 9½c basis. Later this price became the ruling quotation. The export price is announced at 10.30 c. i. f. European ports but some shading in this figure is said to have been made on sizable tonnages. The statistical position continues unsatisfactory, production in September being larger than any month since January, adding additional stocks to an already unwieldly amount now above ground. Taking into consideration higher wages and other factors of cost copper is selling even below the price of 9c which prevailed in the period of depression of the 90's and is the lowest figure copper ever reached.

Copper Sulfate — The continued weakness in the copper market was reflected again in lowered prices for blue vitriol. Effective Oct. 23, copper sulfate in car lots was reduced to $3.95 a cwt. f. o. b. N. Y. Stocks are said to be low and the reduction in no way reflects the trend in demand for the salt, although shipments are light at the moment. Tonnages for 1930 are said by leading producers to have been satisfactory and most plants are now operating on full schedules building up stocks for the coming season.

1929 High	1929 Low	1928 High	1928 Low		Current Market	1930 High	1930 Low
.50	.45	.50	.45	Dimethylsulfate, 100 lb drs...lb.	.45	.50	.50	.45
.16½	.15	.16½	.15½	Dinitrobenzene, 400 lb bbls...lb.	.15½	.16½	.16½	.15½
.15	.1:	.16	.15	Dintrochlorobenzene, 400 lb bbls.....lb.	.13	.15	.15	.13
.37	.34	.34	.32	Dinitronaphthalene, 350 lb bbls .....lb.	.34	.37	.37	.34
.32	.31	.32	.31	Dinitrophenol, 350 lb bbls....lb.	.31	.32	.32	.31
.19	.17	.19	.18	Dinitrotoluene, 300 lb bbls...lb.	.16	.17	.18	.16
.49	.42	.90	.48	Diorthotolyguanidine, 275 lb bbls wks.....lb.	.42	.46	.46	.42
.....	.....	.....	.....	Dioxan (See Diethylene Oxide)	.....	.....	...	.....
.50	.40			Diphenyl.....lb.	.20	.40	.50	.20
.47	.40	.47	.45	Diphenylamine.....lb.	.....	.40	.40	.40
.40	.39	.72	.40	Diphenylguanidine, 100 lb bbl lb.	.30	.35	.35	.30
.30	.26	.30	.26	Dip Oil, 25%, drums.....lb.	.26	.30	.30	.26
57.00	46.50	62.00	58.00	Divi Divi pods, bgs shipmt..ton	.....	35.00	46.50	35.00
.05½	.05	.05½	.05	Extract.....lb.	.05	.05½	.05½	.05
.84	.77	.82	.73	Egg Yolk, 200 lb cases.....lb.	.72	.75	.80	.72
1.90	1.70	1.75	1.7	Epsom Salt, tech, 300 lb bbls c-1 NY..... ....100 lb.	1.70	1.90	1.90	1.70
.39	.38	.38	37	Ether, USP, 600 lb. drs.....lb.	.....	.13	.14	.13
				Anhydrous, C.P. 300 lb. drs.lb.	.....	.40	.40	.40
.122	.108	1.05	.75	Ethyl Acetate, 85% Ester, ... tanks.....lb.	.....	.088	.115	.088
.129	.111	1.25	1.10	drums.....lb.	.094	.10	.158	.094
				Anhydrous, tanks.....lb.	.....	.142	.142	.142
				drums.....lb.	.149	.156	.156	.149
.68	.65	.....	.....	Acetoacetate, 50 gal drs....lb.	.65	.68	.68	.65
1.11	1.05	1.11	1.05	Benzylaniline, 300 lb drs...lb.	1.05	1.11	1.11	1.05
.55	.50	.70	.70	Bromide, tech, drums .....lb.	.50	.55	.55	.50
1.90	1.85	.....	.....	Carbonate, 90%, 50 gal drs gal.	1.85	1.90	1.90	1.85
.22	.22	.22	.22	Chloride, 200 lb. drums....lb.	.....	.22	.22	.22
.40	.35	.....	.....	Chlorocarbonate, cbys.....lb.	.....	.30	.40	.30
.52	.50	.....	.....	Ether, Absolute, 50 gal drs..lb.	.50	.52	.52	.50
5.00	5.00			Furoate, 1 lb tins .....lb.	.....	5.00	5.00	5.00
.35	.25	3.50	3.50	Lactate, drums works.....lb.	.25	.29	.29	.25
.30	.30	.30	.30	Methyl Ketone, 50 gal drs..lb.	.....	.30	.30	.30
.55	.45	.55	.45	Oxalate, drums works.....lb.	.45	.55	.55	.45
.36	.30	.36	.30	Oxybutyrate, 50 gal drs wks.lb.	.....	.30½	.30½	.30½
.70	.79	.70	.70	Ethylene Dibromide, 60 lb dr .lb.	.....	.70	.70	.70
.85	.75	.85	.75	Chlorhydrin, 40%, 10 gal cbys. chloro. cont.....lb.	.75	.85	.85	.75
.10	.05	.11	.07	Dichloride, 50 gal drums...lb.	.05	.07	.07	.05
30	.25	.40	.25	Glycol, 50 gal drs wks.....lb.	.25	.28	.28	.25
.31	.23	.27	.31	Mono Butyl Ether drs wks.	.25	.27	.27	.23
.24	.16	.20	.24	Mono Ethyl Ether drs wks	.17	.20	.20	.16
.26	.19	.23	26	Mono Ethyl Ether Acetate dr. wks.....	.19½	.23	.23	.19
.23	.19			Mono Methyl Ether, drs.lb.	.21	.23	.23	.19
				Oxide, cyl.....lb.	.....	2.00	2.00	2.00
.65	.45	.65	.62	Ethylidenaniline.....lb.	.45	.47½	.47½	.45
25.00	20.00	25.00	20.00	Feldspar, bulk.....ton	25.00	20.00	25.00	20.00
21.00	15.00	21.00	15.00	Powdered, bulk works.....ton	15.00	21.00	21.00	15.00
.09	.05	.09	.07½	Ferric Chloride, tech, crystal 475 lb bbls.....lb.	.05	.07½	.07½	.05
4.25&10	3.65&10	5.50&10	4.90&10	Fish Scrap, dried, wks.....unit	.....	3.90&10	4.35&10	3.90&10
4.00&50	3.50&50	4.75&50	4.00&50	Acid, Bulk 7 & 3½% delivered Norfolk & Balt. basis...unit	.....	3.25&50	3.50&50	3.25&50
46.00	41.00	25.00	25.00	Fluorspar, 98%, bags.....	41.00	46.00	46.00	41.00

Formaldehyde

.....	.....	.....	.....	Formaldehyde, aniline, 100 lb. drums.....lb.	.....	.....	.....	.....
.42	.37½	.42	.39	USP, 400 lb bbls wks.....lb.	.37½	.42	.42	.37½
.10	.08½	.09	.08½	Fossil Flour.....lb.	.07½	.07½	.08	.07½
.04	.02½	.04	.02½	Fullers Earth, bulk, mines..ton	.02½	.04	.04	.02½
20.00	15.00½	20.00	15.00	Imp. powd c-1 bags.....ton	15.00	20.00	20.00	15.00
30.00	25.00	30.00	25.00	Furfural (tech.) drums, wks..lb.	25.00	30.00	30.00	25.00
.19½	.17	.19½	.1 ½	Furfuramide (tech) 100 lb dr..lb.	.....	.10	.15	.10
.30	.30	.....	.....	Furfuryl Acetate, 1 lb tins....lb.	.....	.30	.30	.30
5.00	5.00	.....	.....	Alcohol, (tech) 100 lb dr....lb.	.....	5.00	5.00	5.00
.50	.50	.....	.....	Furoic Acid (tech) 100 lb dr...lb.	.....	.50	.50	.50
1.00	.50	.....	.....	Fusel Oil, 10% impurities ...gal.	.....	.50	.50	.50
1.35	1.35	1.35	1.3	Fustic, chips.....lb.	.. ..	1.35	1.35	1.35
.05	.04	.05	.0[illegible]	Crystals, 100 lb boxes.....lb.	.04	.05	.05	.04
.22	.20	.22	.20	Liquid, 50°, 600 lb bbls....lb.	.20	.22	.22	.20
.10	.09	.10	.09	Solid, 50 lb boxes.....lb.	.09	10	.10	.09
.16	.14	.23	.2[illegible]	Sticks.....ton	.14	.16	.16	.14
26.00	25.00	32.00	30.00	G Salt paste, 360 lb bbls.....lb.	25.00	26.00	26.00	25.00
.52	.45	.52	.50	Gall Extract.....lb.	.45	.50	.50	.45
.21	.18	.21	.20	Gambier, common 200 lb cs...lb.	.18	.20	.20	.18
.07	06	.09	.08	25% liquid, 450 lb bbls....lb.	.06	.07	.07	.06
.14	.08	.14	.12	Singapore cubes, 150 lb bg..lb.	.08	.10	.10	.08
.09	.08½	.12	.11	Gelatin, tech, 100 lb cases....lb.	.08½	.09	.09	.08½
.50	.45	.50	.45	Glauber s Salt, tech, c-1 wks.....100 lb.	.45	.50	.50	.45
1.70	.70	1.00	.70	Glucose (grape sugar) dry 70-80° bags c-1 NY.....100 lb.	1.00	1.70	1.70	1.00
3.34	3.20	3.34	3.24	Tanner's Special, 100 lb bags .....100 lb.	3.24	3.34	3.34	3.24
3.14	3.14	3.14	3.14	Glue, medium white, bbls ...lb.	.....	3.14	3.14	3.14
.24	.20	.24	.20	Pure white, bbls.....lb.	.20	.24	.24	.20
.26	.22	.26	.22	Glycerin, CP, 550 lb drs.....lb.	.22	.26	.26	.22
.16	.13½	.19	.15	Dynamite, 100 lb drs..... lb.	.14	.14½	.14½	.14
.12½	.10½	.15	11½	Saponification, tanks.....lb.	.12	.12½	.12½	.12
.08½	.07½	.10½	.08½	Soap Lye, tanks.....lb.	.07½	.08	.08	.07½
.07½	.06½	.09½	.07½	Graphite, crude, 220 lb bgs...ton	07	.07½	.07½	.07
35.00	15.00	35.00	15.00	Flake, 500 lb bbls.....lb.	15.00	35.00	35.00	15.00
.09	.06	.09	.06		.06	09	.09	.06

Gums

.04½	.03	.04½	.03½	Gum Accroides, Red, coarse and fine 140-150 lb bags.....lb.	.03½	.04½	.04½	.03½
.06½	.06½	.06½	.06	Powd, 150 lb bags .....lb.	.06	.06½	.06½	.06

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Chemical Sales Department
ROCHESTER, N. Y.

Prices Current and Comment

Purchasing Power of the Dollar: 1926 Average—$1.00 - 1929 Average $1.039 - Jan. 1929 $1.026 - Oct. 1930 $1.203

Cream of Tartar — Effective Oct. 27, prices were reduced ½c. Present schedule U. S. P. crystals or powdered is 1-4 bbl., 25½c a lb.; 5 bbls, 25¼c. Shipments are only routine.

Cyanamide — Imported material was in evidence but prices appeared to be unaffected with material being offered at 1.39 a unit at coast points with protection through June.

Dextrins — No further changes were made in the schedule as announced a month ago. Material was being taken in restricted quantity to cover only pressing needs. Producers report that total tonnages for the first nine months of this year compare very favorably with the corresponding period in 1929.

Epsom Salt — Greater interest from the tanning industry has exerted a steadying influence and prices are rather firm at $1.70-$1.75 a cwt.

Ethyl Acetate — Effective Oct. 27, prices were reduced to 8.8c a lb. for tank cars, c. l. drums, 9.4c, l. c. l. drums, 10.0c freight allowed. Contracts are being accepted for delivery through the end of the year with customers under earlier contracts being protected at these prices. With curtailment in consuming industries shipments are off considerably from last year. No indication has yet been made on prices for 1931.

Fish Scrap — Little change is noticeable in the primary markets. Producers were holding firmly at $4 and 10 per unit f. o. b. factories.

Formaldehyde — Considerable improvement has manifested itself in the last few weeks. Spot inquiry as well as shipments against existing contracts are in much larger volume. The plastic industry shows definite signs of early improvement. Prices continue firm at 7¼c-7¾c a lb.

Glaubers Salt — Shipments are going forward in a routine manner with domestic producers quite firm in their price attitude. The anhydrous material continues to make serious inroads into the crystal grade. Imported prices are continued at rather low levels.

Glues — Despite a rather limited demand from consuming channels sellers were holding to former price levels quite consistently. Some slight concessions were being made on certain grades but stocks generally are reported to be quite in line with consumption.

Glycerine — Colder weather has stimulated sales of glycerine for anti-freeze purposes and shipments into industrial lines are of larger volume. Prices remain firm and unchanged.

Gums — Conditions have not materially changed in the gum market for the

1929 High	1929 Low	1928 High	1928 Low		Current Market	1930 High	1930 Low
.20	.18	.20	.18	Yellow, 150-200 lb bags....lb.	18	.20	.20	.18
				Animi (Zanzibar) bean & pea				
.40	.35	.40	35	250 lb cases.....lb.	.35	.40	.40	.35
.55	.50	.55	.50	Glassy, 250 lb cases.....lb.	.50	.55	.55	.50
				Asphaltum, Barbadoes (Manjak)				
.12	.09	.12	.09	200 lb bags.....lb.	.09	.12	.12	.09
.17	.15	.17	.15	Egyptian, 200 lb cases.....lb.	.15	.17	.17	.15
				Gilsonite Selects, 200 lb bags				
65.00	58.00	65.00	55.00	.....ton	58.00	65.00	65.00	58.00
				Damar Batavia standard 136, lb				
.26	.22	.26	.22½	cases.....lb.	.14	.15	.20	.14
.11	.10½	.11	.10½	Batavia Dust, 160 lb bags.....lb.	.06½	.07	.11	.06
.17½	.15	.17½	.16	E Seeds, 136 lb cases.....lb.	.08½	.09	.13	.08
				F Splinters, 136 lb cases and				
.13½	.13	.14½	.13	bags.....lb.	.07½	.08	.13½	.07
.30½	.26	.30½	.29½	Singapore, No 1, 224 lb cases lb.	.19	.19½	.24	.18½
24	.21½	.24	.20	No. 2, 224 lb cases.....lb.	.13½	.14	.20½	.13
.14	.10	.15	.13½	No. 3, 180 lb bags.....lb.	.07½	.08	.11½	.07
				Benzoin Sumatra, U. S. P. 120 lb				
.40	.38	.48	.33	cases.....lb.	.33	.34	.40	.33
				Copal Congo, 112 lb bags, clean				
.17	.14	.15	.14	opaque.....lb.	.16	.17	.17	.16
.09	.08½	.09	.08½	Dark, amber.....lb.	.07½	.08	.08	.07½
.14	.12½	.14	.12½	Light, amber.....lb.	.12½	.14	.14	.12½
.36	.35	.36	.35	Water white.....lb.	.37	.45	.45	.37
.65	.58	.65	.58	Mastic.....lb.	.57	.58	.65	.57
				Manila, 180-190 lb baskets				
.17½	.17	.17½	.16	Loba A.....lb.	.14	.15	.17½	.13
.16½	.15½	.16½	.15	Loba B.....lb.	.13½	.14	.16½	.13½
.14½	.13½	.14	.13	Loba C.....lb.	.10	.14	.14	.10
.19	.17	.19	.16	Pale bold, 224 lb cs.....lb.	.16	.18	.19	.16
.13½	.13	.13½	.12	Pale nubs.....lb.	.12	.12½	.13½	.12
.11	.10	.11	.07½	East Indies chips, 180 lb bags lb.	.09	.10	.11	.09
.21	.20	.21	.17	Pale bold, 180 lb bags....lb.	.17½	.18	.21	.17½
.16	.15	.16	.14	Pale nubs.....lb	.12½	.14	.16	.12½
		.....	.....	Pontianak, 224 lb cases....				
.23	.20	.25½	.22	Pale bold gen No 1.....lb.	.19	.20	.21	.19
.15	.14½	.15	.13	Pale gen chips spot.....lb.	.13½	.14	.15	.13½
.14	.13½	.14	.13	Elemi, No. 1, 80-85 lb cs...lb.	.12½	.13	.14	.12½
.13½	.13	.13½	.13	No. 2, 80-85 lb cases.....lb.	.12	.12½	.13½	.12
.13	.12	.13	.12	No. 3, 80-85 lb cases.....lb.	.11	.12	.13	.11
				Kauri, 224-226 lb cases No. 1				
.57	.50	.57	.50	.....lb.	.48	.54	.57	.48
.38	.35	.38	.35	No. 2 fair pale.....lb.	.32	.33	.38	.32
				Brown Chips, 224-226 lb				
.12	.10	.12	.10	cases.....lb.	.10	.12	.12	.10
.....	.....	.....	.....	Bush Chips, 224-226 lb.				
.40	.38	.40	.38	cases.....lb.	.38	.40	.40	.38
.....	.....	.....	.....	Pale Chips, 224-226 lb cases				
.26	.24½	.26	.24½	.....lb.	.24½	.26	.26	.24½
				Sandarac, prime quality, 200				
.72	.35	.60	.26	lb bags & 300 lb casks...lb.	.27	.28	.40	.27
.20	.17	.....	.....	Helium, 1 lit. bot.....lit.	.....	25.00	25.00	25.00
.20	.14	.20	.17	Hematine crystals, 400 lb bbls lb.	.14	.18	.18	.14
.11	.11	.11	.11	Paste, 500 bbls.....lb.	.....	.11	.11	.11
.03½	.03	.03¼	.03½	Hemlock 25%, 600 lb bbls wks lb.	.03	.03½	.03½	.03
17.00	16.00	16.00	16.00	Bark.....ton	.....	16.00	16.00	16.00
.60	.60	.60	.60	Hexalene, 50 gal drs wks.....lb.	.....	.60	.60	.60
.58	.48	.56	.62	Hexamethylenetetramine, drs .lb.	.48	.50	.50	.48
4.00	3.75	4.00	4.00	Hoof Meal, fob Chicago....unit	.....	3.75	3.75	3.75
3.90	3.75	.....	.....	South Amer. to arrive....unit	.....	3.75	3.75	3.75
				Hydrogen Peroxide, 100 vol, 140				
.26	.24	.26	.24	lb cbys.....lb.	.24	.26	.26	.24
				Hydroxyamine Hydrochloride lb.	.....	3.15	3.15	3.15
.15	.12	.15	.12	Hypernic, 51°, 600 lb bbls....lb.	.12	.15	.15	.12
1.30	1.28	1.30	1.28	Indigo Madras, bbls.....lb.	1.28	1.30	1.30	1.28
.18	.15	.18	.15	20% paste, drums.....lb.	.15	.18	.18	.15
.12	.12			Synthetic, liquid.....lb.	.....	.12	.12	.12
				Iron Chloride, see Ferric or				
				Ferrous				
.10	.09	.10	.09	Iron Nitrate, kegs.....lb.	.09	.10	.10	.09
3.25	2.50	3.25	2.50	Coml, bbls.....100 lb.	2.50	3.25	3.25	2.50
.12	.10	.12	.10	Oxide, English.....lb.	.10	.12	.12	.10
.03½	.02½	.03¼	.02½	Red, Spanish.....lb.	.02½	.03½	.03¼	.02½
.90	.85	.90	.85	Isopropyl Acetate, 50 gal drs gal.	.85	.90	.90	.85
.18	.16	.20	.17	Japan Wax, 224 lb cases.....lb.	.13	.13½	.15½	.13
				Kieselguhr, 95 lb bgs NY.....				
70.00	60.00	70.00	60.00	Brown.....ton	60.00	70.00	70.00	60.00
13.50	13.00	.....	.....	Lead Acetate, bbls wks...100 lb.	10.50	11.00	13.50	10.50
				White crystals, 500 lb bbls				
14.50	14.00	13.50	13.00	wks.....100 lb.	11.50	12.25	14.50	11.50
.15	.13	.15	.13	Arsenate, drs 1c-1 wks.....lb.	.13	.16	.16	.13
				Dithiofuroate, 100 lb dr....lb.	.....	1.00	1.00	1.00
7.75	6.10	6.25	6.25	Metal, c-l NY.....100 lb.	.....	7.75	7.75	6.10
.14	.14	.14	.14	Nitrate, 500 lb bbls wks....lb.	.....	.14	.14	.14
.18	.17½	.18	.17½	Oleate, bbls.....lb.	.17½	.18	.18	.17½
.08½	.08½	.08½	.08½	Oxide Litharge, 500 lb bbls.lb.	.....	.08½	.08½	.08½
.09½	.09½	.09½	.09½	Red, 500 lb bbls wks....lb.	.....	.09½	.09½	.09½
.09½	.09	.09	.09	White, 500 lb bbls wks...lb.	.....	.09½	.09½	.09½
.08½	.08½	.08½	.08½	Sulfate, 500 lb bbls wk...lb.	.....	.08½	.08½	.08½
57.00	52.00			Leuna saltpetre, bags c.i.f...ton	.....	57.60	57.60	57.60
57.30	52.30			S. points c. i. f.....ton	.....	57.90	57.90	57.90
4.50	4.50	4.50	4.50	Lime, ground stone bags.....ton	.....	4.50	4.50	4.50
1.05	1.05	1.05	1.05	Live, 325 lb bbls wks...100 lb.	.....	1.05	1.05	1.05
				Lime Salts, see Calcium Salts				
.17	.15	.17	.15	Lime-Sulfur soln bbls.....gal.	.15	.17	.17	.15
				Lithopone, 400 lb bbls 1c-1 wks				
.06½	.05½	.06½	.06½	.....lb.	.....	.05½	.05½	.05½
.08½	.08½	.08½	.08½	Logwood, 51°, 600 lb bbls.....lb.	.08½	.08½	.08½	.08½
.03½	.03	.03½	.03	Chips, 150 lb bags.....lb.	.03	.03½	.03½	.03
.12½	.12½	.12½	.12½	Solid, 50 lb boxes.....lb.	.....	.12½	.12½	.12½
26.00	24.00	27.00	26.00	Sticks.....ton	24.00	26.00	26.00	24.00
.08	.07½	.08	.07½	Lower grades.....lb.	.07½	.08	.08	.07½
.25	.22	.30	.30	Madder, Dutch.....lb.	.22	.25	.25	.22
60.00	50.00	50.00	48.00	Magnesite, calc, 500 lb bbl...ton	50.00	60.00	60.00	50.00

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Prices Current and Comment

Purchasing Power of the Dollar: 1926 Average—$1.00 - 1929 Average $1.039 - Jan. 1929 $1.026 - Oct. 1930 $1.203

past few weeks. While actual sales are only moderate, prices generally have held close to former levels. Here and there some slight concessions have been granted but the general tone has been one of firmness and an unwillingness on the part of importers to sacrifice present stocks which are admittedly low at concessions. With importers four months away from the primary market and with stocks here at a low ebb any slight improvement in demand is expected to reflect in higher prices. Dammars, Batavia A/E grades were being quoted at varying prices fluctuating between 14c-15c depending upon quantity and seller. Little demand was in evidence for Kauri, but what sales were actually consummated were at firm and unchanged prices. Sandarac, small lot trading ruled in this grade at 32c-33½c.

Intermediates — Generally conditions are said to be better with actual shipments increasing and inquiries in greater volume than has been experienced for some time. Anilin oil, benzaldehyde, betanaphthol, and nitrobenzene shipments against contract were in a much more encouraging volume. A considerable portion of this improvement is credited to the more active conditions prevailing in the textile field.

Iron Oxides — While published prices are unaltered some shading specially on large sized tonnages were being made to clear stocks.

Japan Wax — Advance in exchange rates was given as the principal reason for the strengthening of prices during the last week of the month.

Lead — The rather severe competitive position in the metal market abated somewhat with the close of the month and producers were viewing the future with more optimism. Corroders were reported to be entering the market with more confidence than has been in evidence in some time.

Lead Acetate — In sympathy with past reductions in the lead market leading producers on Oct. 30, announced a decrease of 50c a cwt. This is the first change since Feb. 24 and brings the current price down to $10.50 for brown; $12.00 for white, broken, $12.00 for granular, $11.50 for crystal and $12.25 for powdered. Inquiry is fair.

Lithopone — No changes were in evidence and prices remain unaltered. Shipments against existing contracts are moving out into consuming channels in fair sized quantities.

Mercury — The market in this commodity appears weak. While inquiry is fair most sales are for small lots. The announced price is $112.50 for five lot

1929 High	1929 Low	1928 High	1928 Low		Current Market	1930 High	1930 Low
				Magnesium			
.06½	.06	.06½	.06	Magnesium Carb, tech, 70 lb bags NY lb.	.06	.06½	.06½ .06
36.00	36.00	37.00	27.00	Chloride flake, 375 lb. drs c-l wks ton	.....	36.00	36.00 36.00
33.00	33.00	33.00	33.00	Imported shipment ton	.....	33.00	33.00 33.00
31.00	31.00	31.00	31.00	Fused, imp, 900 lb bbls NY ton	.....	31.00	31.00 31.00
.10½	.10	.10½	.10	Fluosilicate, crys, 400 lb bbls wks lb.	.10	.10½	.10½ .10
.42	.42	.42	.42	Oxide, USP, light, 100 lb bbls lb.	.....	.42	.42 .42
.50	.50	.50	.50	Heavy, 250 lb bbls lb.	.....	.50	.50 .50
1.25	1.00	.....	.....	Peroxide, 100 lb cs lb.	1.00	1.25	1.25 1.00
.10½	.09½	.10½	.09½	Silicofluoride, bbls lb.	.09½	.10½	.10½ .09½
.26	.25	.25	.23	Stearate, bbls lb.	.25	.26	.26 .25
.24	.19	.24	.24	Manganese Borate, 30%, 200 lb bbls lb.	.....	.19	.19 .19
.08½	.08	.08½	.08	Chloride, 600 lb casks lb.	.08	.08½	.08½ .08
.06	.04½	.....	.....	Dioxide, tech (peroxide) drs lb.	.04½	.06	.06 .04½
		.50	.35	Powdered or granular			
.03½	.02½	.03½	.03	75-80%, bbls lb.	.02½	.03	.03 .02½
.04½	.03½	.04½	.04	80-85%, bbls lb.	.....	.03½	.03½ .03½
.05½	.04	.05½	.05	85-88%, bbls lb.	.04	.04½	.04½ .04
.08½	.07	.07½	.07	Sulfate, 550 lb drs NY lb.	.07	.08	.08 .07
Nom.	.03½	Nom.	.03½	Mangrove 55%, 400 lb bbls. lb.	.03½	Nom.	Nom. .03½
35.00	30.00	45.00	39.000	Bark, African ton	.....	29.75	33.00 29.75
15.00	14.00	12.00	10.00	Marble Flour, bulk ton	14.00	15.00	15.00 14.00
2.05	2.05			Mercurous chloride lb.	.....	2.05	2.05 2.05
126.00	120.00	132.00	121.00	Mercury metal 75 lb flask	.....	112.50	124.50 112.50
.74	.67	.74	.72	Meta-nitro-aniline lb.	.67	.69	.69 .67
1.55	1.50	1.80	1.50	Meta-nitro-para-toluidine 200 lb. bbls lb.	1.50	1.55	1.55 1.50
.90	.80	.94	.90	Meta-phenylene-diamine 300 lb. bbls lb.	.80	.84	.84 .80
.72	.67	.74	.72	Meta-toluene-diamine, 300 lb bbls lb.	.67	.69	.69 .67
				Methanol			
.65	.51	.58	.46	Methanol, (Wood Alcohol), 95% gal.	.38	.42	.48 .38
.65	.53	.60	.47	97% gal.	.39	.43	.49 .39
.68	.53	.63	.44	Pure, Synthetic drums cars gal.	.....	.42½	.50 .42½
.66	.54	.58	.48	Synthetic tanks gal.	.....	.40½	.50 .40½
				Methanol antifreeze 76½% tanks	.....	.31	.31 .31
.95	.95	.95	.95	Methyl Acetate, drums gal.	.....	Nom.	Nom. Nom.
.85	.73	.90	.68	Acetone, gal.	.65	.70	.77 .65
.95	.85	.95	.85	Anthraquinone, lb.	.70	.75	.85 .70
.....	.....	.....	.....	Cellosolve, (See Ethylene Glycol Mono Methyl Ether)	.....	.....	....
.60	.45	60	.55	Chloride, 90 lb cyl lb.	.45	.45	.45 .45
.50	.50			Furoate, tech., 50 gal. dr., lb.	.....	.50	.50 .50
80.00	65.00	80.00	65.00	Mica, dry grd. bags wks lb.	65.00	80.00	80.00 65.00
115.00	110.00	115.00	110.00	Wet, ground, bags wks lb.	110.00	115.00	115.00 110.00
3.00	3.00	.....	.....	Michler's Ketone, kegs lb.	.....	3.00	3.00 3.00
.75	.70	.75	.70	Monochlorobenzene, drums see, Chorobenzene, mono lb.			
				Monoethylorthotoluidin, drs. lb.	.70	.75	.75 .70
4.20	3.75	4.20	3.95	Monomethylparaminosufate 100 lb drums lb.	3.75	4.00	4.00 3.75
.07	.06½	.07	.06½	Montan Wax, crude, bags lb.	.06	.07	.07 .06
.04½	.03½	.04½	.04½	Myrobalans 25%, liq bbls b	.03¾	.04½	.04½ .03¾
.08½	.05	.08½	.08	50% Solid, 50 lb boxes lb.	.05	.05½	.05½ .05
43.00	40.00	50.00	42.00	J1 bags ton	.....	41.00	41.00 41.00
40.00	26.50	40.00	32.50	J 2 bags ton	.....	22.50	26.50 22.50
34.00	27.50	40.00	32.50	R 2 bags ton	.....	21.50	27.50 21.50
.18	.16	.18	.18	Naphtha, v. m. & p. (deodorized) bbls gal.	.....	.16	.16 .16
.05½	.05½	.06	.05½	Naphthalene balls, 250 lb bbls wks lb.	.....	.04½	.05½ .04½
.04½	.04½	.04½	.04½	Crushed, chipped bgs wks. lb.	.....	.04	.04½ .04
.05	.05	.05	.05	Flakes, 175 lb bbls wks lb.	.....	.03½	.05 .03¾
.24	.20	.24	.21	Nickel Chloride, bbls kegs lb.	.20	.21	.21 .20
.40	.37	.38	.35	Oxide, 100 lb kegs NY lb.	.37	.40	.40 .37
.13	.13	.09½	.09	Salt bbl. 400 bbls lb NY lb.	.....	.13	.13 .13
.13	.13	.09	.08½	Single, 400 lb bbls NY lb.	.....	.13	.13 .13
1.30	1.25	1.30	1.25	Nicotine, free 40%, 8 lb tins, cases lb.	1.25	1.30	1.30 1.25
1.20	.98½	1.20	.98½	Sulfate, 10 lb tins lb.	.98½	1.20	1.20 .98½
18.00	12.00	14.00	13.00	Nitre Cake, bulk ton	12.00	14.00	18.00 12.00
.10½	.09	.10½	.10½	Nitrobenzene, redistilled, 1000 lb drs wks lb.	.09	.09½	.09½ .09
.36	.25	Nom.	.40	Nitrocellulose, c-l-l-cl, wks. lb.	.25	.36	.36 .25
4.00	3.40	4.00	3.35	Nitrogenous Material, bulk unit	2.65	2.70	3.40 2.65
.25	.25	.25	.25	Nitronaphthalene, 550 lb bbls lb.	.....	.25	.25 .25
.15	.14	.15	.14	Nitrotoluene, 1000 lb drs wks lb.	.14	.15	.15 .14
.16½	.16	Nom.	.25	Nutgalls Aleppy, bags lb.	.16	.16½	.16½ .16
.13	.12	.18	.17	Chinese, bags lb.	.12	.13	.13 .12
50.00	30.00	50.00	45.00	Oak Bark, ground ton	30.00	35.00	35.00 30.00
23.00	20.00	23.00	20.00	Whole ton	20.00	23.00	23.00 20.00
.13½	.11¼	.13½	.13	Orange-Mineral, 1100 lb casks NY lb.	.11¼	.13	.13 .11¼
2.25	2.15	2.25	2.20	Orthoaminophenol, 50 lb kgs. lb.	2.15	2.25	2.25 2.15
2.60	2.50	2.50	2.35	Orthoanisidine, 100 lb drs lb.	2.50	2.60	2.60 2.50
.65	.50	.65	.50	Orthochlorophenol, drums lb.	.50	.65	.65 .50
.28	.18	.28	.18	Orthocresol, drums lb.	.25	.25	.35 .18
.10	.07	.07	.06	Orthodichlorobenzene, 1000 lb drums lb.	.07	.10	.10 .07
.33	.30	.35	.32	Orthonitrochlorobenzene, 1200 lb drs wks lb.	.30	.33	.33 .30
.18	.16	.18	.17	Orthonitrotoluene, 1000 lb drs wk lb.	.16	.18	.18 .16
.90	.85	.90	.85	Orthonitrophenol, 350 lb dr lb.	.85	90	.90 .85
.30	.25	.31	.29	Orthotoluidine, 350 lb bbl lc-l lb.	.25	30	.30 .25

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Prices Current and Comment

Purchasing Power of the Dollar: 1926 Average—$1.00 - 1929 Average $1.039 - Jan. 1929 $1.026 - Oct. 1930 $1.203

casks but indications point to some shading below this figure.

Methanol — Producers report a slight improvement in both spot demand and shipments against contracts. It is apparently too early to determine just what part methanol will play in the anti-freeze market this year although sales are being made.

Naphtha — Producers produce slight improvement in shipments to the lacquer industry. Prices are firm and unchanged.

Naphthalene — With prices established at the lower figures announced a month ago producers were experiencing an improvement in actual shipments going into consuming channels. A fair amount of 1931 business is said to have been booked at the announced prices specially in the case of the smaller users.

Nickel Salts — Activity in the plating field while improved from last month is still considerably below normal and this condition is reflected in shipments both spot and under contract.

Phthalic Anhydride — The reduction made a month ago apparently has effected more stabilized conditions in this market.

Phenol — The plastics industry has displayed greater interest during the past month and leading phenol producers are experiencing a betterment of conditions both in the spot market and on withdrawals by contract customers. The radio and automotive accessory fields are more active and this is being reflected in the tonnages of several raw commodities.

Phosphate Rock — Demand apparently was satisfactory to sellers and prices remain unaltered in the several grades.

Potassium Chlorate — Withdrawals are being taken in satisfactory volume. Prices are steady with little likelihood of any change being made for some time.

Potassium Bichromate — Simultaneously with the announcement of prices on sodium bichromate, producers were reported taking contracts for 1931 on the potash at 1930 levels, 8¾c-9½c a lb. depending upon quantity.

Potash Caustic — Sellers are renewing contracts at the same levels as this year. Producers and importers appear satisfied with the volume of tonnage booked to date.

Potassium Permanganate — A fair amount of sales and inquiries are reported with prices being well maintained at the current levels of 16-16½c.

Rosins — Buyers are covering only their immediate needs with small lot purchases. Very few commitments are being made in a large way on future deliveries. However, actual sales while individually small in total volume appeared better than in several months.

1929 High	1929 Low	1028 High	1028 Low		Current Market	1930 High	1930 Low
				Orthonitroparachlorphenol, tins lb.	.70	.75	.75	.70
.75	.70	.75	.70	Osage Orange, crystals lb.	.16	.17	.17	.16
.17	.16	.17	.16	51 deg. liquid lb.	.07	.07½	.07½	.07
.07½	.07	.07	.07	Powdered, 100 lb bags lb.	.14½	.15	.15	.14½
.15	.14½	.15	.14½	Paraffin, refd, 200 lb cs slabs				
.06¾	.04½	.06¾	.06¾	123-127 deg. M. P. lb.	.04½	.04½	.04½	.04½
.07	.04½	.07½	.07½	128-132 deg. M. P. lb.	.04½	.06¾	.06¾	.04½
.07½	.06½	.08½	.08	133-137 deg. M. P. lb	.06½	.07½	.07½	.06½
.28	.20½	.28	.20½	Para Aldehyde, 110-55 gal drs. lb.	.20½	.23	.23	.20½
1.05	1.00	1.05	1.00	Aminoacetanilid, 100 lb bg. lb.	1.00	1.05	1.05	1.00
				Aminohydrochloride, 100 lb kegs lb	1.25	1.30	1.30	1.25
1.30	1.25	1.30	1.25	Aminophenol, 100 lb kegs lb.	.92	1.25	1.02	.92
1.15	.99	1.15	1.15	Chlorophenol, drums lb.	.50	.65	.65	.50
.65	.50	.65	.50	Coumarone, 330 lb drums lb.	.....	.....	.....	.....
.....	.....	.....	.....	Cymene, refd, 110 gal dr. gal.	2.25	2.50	2.50	2.25
2.50	2.25	2.50	2.25	Dichlorobenzene, 150 lb bbls wks lb.	.17	.20	.20	.17
.20	.17	.20	.17	Nitroacetanilid, 300 lb bbls lb.	.50	.55	.55	.50
.55	.50	.55	.50	Nitroaniline, 300 lb bbls wks lb.	.48	.55	.55	.48
.55	.48	.59	.48	Nitrochlorobenzene, 1200 lb drs wks lb.	.23	.26	.26	.23
.26	23	.32	.32	Nitro-orthotoluidine, 300 lb bbls lb.	2.75	2.85	2.85	2.75
2.85	2.75	2.85	2.75	Nitrophenol 185 lb bbls lb.	.45	50	.50	.45
.55	.45	.55	.50	Nitrosodimethylaniline, 120 lb. bbls lb.	.92	.94	.94	.92
.94	.92	.94	.92	Nitrotoluene, 350 lb bbls lb.	.29	.31	.31	.29
.31	.29	.30	30	Phenylenediamine, 350 lb bbls lb.	1.15	1.20	1.20	1.15
1.20	1.15	1.20	1.15	Toluenesulfonamide, 175 lb bbls lb.	.70	.75	.75	.70
.75	.70	.41	.40	Toluenesulfonchloride, 410 lb bbls wks lb.	.20	.22	.22	.20
.22	.20	.22	.20	Toluidine, 350 lb bbls wk lb.	.38	.40	.40	.38
.42	.38	.42	.40	Paris Green, Arsenic Basis				
.27	25	.25	.20	100 lb kegs lb.	.....	.27	.27	.27
.25	.23	.23	.17	250 lb kegs lb.	.....	.25	.25	.25
25	.25	.....	.....	Persian Berry Ext., bbls lb.	.25	Nom.	Nom.	.25
				Pentasol (see Alcohol, Amyl)				
				Pentasol Acetate (see Amyl Acetate)				
.02½	.02	.03	.02½	Petrolatum, Green, 300 lb bbl. lb.	.02	.02½	.02½	.02
.16	.13	.13	.20	Phenol, 250-100 lb drums lb.	.14½	.15	.15	.14½
1.35	1.35	1.35	1.35	Phenyl - Alpha - Naphthylamine, 100 lb kegs lb.	.....	1.35	1.35	1.35
				Phenylhydrazine Hydrochloride lb.	2.90	3.00	3.00	2.90

Phosphate

				Phosphate Acid (see Superphosphate)				
				Phosphate Rock, f.o.b. mines				
3.15	3.00	3.15	3.00	Florida Pebble, 68% basis. ton	3.00	3.15	3.15	3.00
4.00	3.50	3.65	3.50	70% basis ton	3.75	4.00	4.00	3.75
4.50	4.00	4.15	4.00	72% basis ton	4.25	4.50	4.50	4.25
5.50	5.00	5.00	5.00	75-74% basis ton	5.25	5.50	5.50	5.25
5.75	5.75	5.75	5.75	75% basis ton	.....	5.75	5.75	5.75
6.25	6.25	6.25	6.25	77-76% basis ton	.....	6.25	6.25	6.25
5.00	5.00	5.00	5.00	Tennessee, 72% basis ton	.....	5.00	5.00	5.00
				Phosphorous Oxychloride 175 lb cyl lb.	.20	.25	.25	.20
.40	.20	.40	.35	Red, 110 lb cases lb.	.37½	.42	.42	.37½
.60	.37½	.65	.60	Yellow, 110 lb cases wks lb.	.31	.37½	.37½	.31
.32	.31	.32	.32	Sesquisulfide, 100 lb cs lb.	.....	.44	.44	.44
.46	.44	.46	.46	Trichloride, cylinders lb.	.20	.25	.25	.20
.35	.20	.....	.....	Phthalic Anhydride, 100 lb bbls wks lb.	.15	.16	.20	.15
.20	.18	.20	.18	Pigments Metallic, Red or brown				
45.00	37.00	45.00	37.00	bags, bbls, Pa. wks ton	37.00	45.00	45.00	37.00
				Pine Oil, 55 gal drums or bbls				
.64	.63	.64	.63	Destructive dist. lb.	.63	.64	.64	.63
10.60	8.00	10.60	8.00	Prime bbls bbl.	8.00	10.60	10.60	8.00
.70	.65	.70	.70	Steam dist. bbls gal.	.65	.70	.70	.65
				Pitch Hardwood,				
45.00	40.00	45.00	40.00	wks ton	40.00	45.00	45.00	40.00
				Plaster Paris, tech, 250 lb bbls bbl.	3.30	3.50	3.50	3.30
3.50	3.30	3.30	3.30					

Potash

.07½	.06½	.07½	.07½	Potash, Caustic, wks, solid lb.	.06½	.06¾	.06¾	.06½
.07½	.0705	.07½	.07½	flake lb.	.0705	08	.08	.0705
				Potash Salts, Rough Kainit				
9.10	9.00	9.00	9.00	12.4% basis bulk ton	.....	9.20	9.20	9.10
9.60	9.50	9.50	9.50	14% basis ton	.....	9.70	9.70	9.60
				Manure Salts				
12.50	12.40	12.40	12.40	20% basis bulk ton	.....	12.65	12.65	12.50
18.95	18.75	18.75	18.75	30% basis bulk ton	.....	19.15	19.15	18.95
				Potassium Acetate lb.	.27	.30	.30	.27
36.75	36.40	36.40	36.40	Potassium Muriate, 80% basis bags ton	.....	37.15	37.15	36.75
27.50	27.00	27.00	27.00	Pot. & Mag. Sulfate, 48% basis bags ton	.....	27.80	27.80	27.50
47.75	47.30	47.30	47.30	Potassium Sulfate, 90% basis bags ton	.....	48.25	48.25	47.75
.14	.09½	.09½	.09	Potassium Bicarbonate, USP, 320 lb bbls lb.	.09½	.10	.10	.09½
.09½	.09	.09½	.08½	Bichromate Crystals, 725 lb casks lb.	.08½	.09½	.09½	.08½
.13½	.13	.12½	.12	Powd., 725 lb cks wks lb.	.13	.13½	.13½	.13

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Prices Current and Comment

Purchasing Power of the Dollar: 1926 Average—$1.00 - 1929 Average $1.039 - Jan. 1929 $1.026 - Oct. 1930 $1.203

This combined with sales of an unmistakable speculative character afforded support to the market. In southern markets a fair demand for both domestic and export consumption was absorbing fairly large sized quantities. Fluctuations in current quotations during the month were light.

Salt Cake — Conditions are somewhat easier in this market than they have been but no further reductions have been made subsequent to those announced last month.

Shellac — Firmer prices prevailed during the last two weeks of the month. Spot stocks are not considered excessive and a definite trend towards larger shipments indicated greater confidence on the part of buyers.

Soda Ash — Manufacturers are experiencing an improvement in actual shipments and in spot inquiries, but nothing more than a routine movement can be expected pending the announcement of 1931 contract schedules. Producers and consumers alike are interested in the announcement of plans for a new alkali plant to be located in the South and its probable effect on an industry which admittedly is overproduced at the present time.

Sodium Bicarbonate — Routine sales are being made on the basis of $2.00 a cwt. f. o. b. plants. Spot inquiry is only fair.

Sodium Bichromate — Prices were announced on Oct. 13 for next year, no change being made in the present price level of 7-7½c depending upon quantity. Producers report a large volume of business has been covered and the response from consumers very satisfactory. The leather industry, large bichromate users, are more optimistic than they have been for several years due to the tariff on leather. This is specially true in the case of the calfskin tanners.

Soda Caustic — Producers are still holding in abeyance the alkali prices for next year. Consumers do not appear to be in any great hurry to contract ahead at this time preferring to await further developments. Consumption is reported better in a few lines but some shading in price is in evidence.

Sodium Phosphate — The competitive position of the tri-salt has been somewhat further aggravated and considerable shading of published prices is being made. Rather keen competition exists likewise in the di-salt as the textile centers have curtailed production schedules slightly and rather large shipments of imported are being received.

Sodium Silicate — Nineteen hundred thirty prices are being repeated by pro-

1929 High	1929 Low	1928 High	1928 Low		Current Market	1930 High	1930 Low
.17	.14	.17	.16	Binoxiate, 300 lb bbls.....lb.	.14	.17	.17	.14
.30	.30	.30	.30	Bisulfate, 100 lb kegs.....lb.	.....	.30	.30	.30
.05½	.05½	.05½	.05½	Carbonate, 80-85% calc. 800 lb casks.....lb.	.05½	.05½	.05½	.05½
.09	.08½	.09	.06½	Chlorate crystals, powder 112 lb keg wks.....lb.	.08	.08½	.09	.08
.05½	.05½	.05½	.05½	Chloride, crys bbls.....lb.	.05½	.06	.06	.05½
.28	.23	.28	.27	Chromate, kegs.....lb.	.23	.28	.28	.23
.57½	.55	.57½	.55	Cyanide, 110 lb. cases.....lb.	.55	.57½	.57½	.55
.13	.11½	.12	.11½	Metabisulfite, 300 lb. bbl...lb.	.12	.13	.13	.12
.24	.16	.17	.16	Oxalate, bbls.....lb.	.20	.24	.24	.20
.12	.11	.12	.11	Perchlorate, casks wks.....lb.	.11	.12	.12	.11
.16½	.16	.15½	.15	Permanganate, USP, crys 500 & 100 lb drs wks.....lb.	.16	.16½	.16½	.16
.40	.38	.38	.37	Prussiate, red, 112 lb keg...lb.	.38	.40	.40	.38
.21	.18½	.18½	.18	Yellow, 500 lb casks.....lb.	.18½	.21	.21	.18½
.51	.51	.51	.51	Tartrate Neut, 100 lb keg..lb.	.....	.21	.21	.21
.25	.21	.25	.25	Titanium Oxalate, 200 lb bbls .....lb.	.21	.23	.23	.21
5.00	5.00	..	.....	Propyl Furoate, 1 lb tins.....lb.	.....	5.00	5.00	5.00
.05	.04	.05	.04	Pumice Stone, lump bags.....lb.	.04	.05	.05	.04
.06	.04½	.06	.04½	250 lb bbls.....lb.	.04½	.06	.06	.04½
.03	.02½	.03	.02½	Powdered, 350 lb bags.....lb.	.02½	.03	.03	.02½
.03½	.03½	.03½	.03½	Putty, commercial, tubs..100 lb.	.....	.03½	.03½	.03½
.05½	.05½	.05½	.05½	Linseed Oil, kegs.....100 lb.	.....	.05½	.05½	.05½
1.75	1.50	1.50	1.50	Pyridine, 50 gal drums.....gal.	1.50	1.75	1.75	1.50
.13½	.13	.13	.13	Pyrites, Spanish cif Atlantic ports bulk.....unit	.13	13½	.13½	.13
.04	.03	.04	.03	Quebracho, 35% liquid tks....lb.	.03	.04	.04	.03
04½	.03½	.04	.03½	450 lb bbls c-1.....lb.	.03½	.03½	.03½	.03½
.04½	.05½	.05	.04	35% Bleaching, 450 lb bbl .lb.	.04½	.05½	.04½	.05½
.05½	.05½	.05	.05	Solid, 63%, 100 lb bales cif..lb.	.05	.05½	.05½	.05
.05½	.05½	.05	.05	Clarified, 64%, bales.....lb.	.....	.05½	.05½	.05½
.06	.05½	.06	.05½	Quercitron, 51 deg liquid 450 lb bbls.....lb.	.05½	.06	.06	.05½
13	.10	.13	.10	Solid, 100 lb boxes.....lb.	.10	.13	.13	.10
14.00	14.00	14.00	14.00	Bark, Rough.....ton	.....	14.00	14.00	14.00
35.00	34.00	35.00	34.00	Ground.....ton	34.00	35.00	35.00	34.00
.46	.44	.46	.45	R Salt, 250 lb bbls wks.....lb.	.40	.44	.45	.40
.18	.18	.....	.....	Red Sanders Wood, grd bbls..lb.	.....	.18	.18	.18
1.25	1.15	1.35	1.25	Resorcinol Tech, cans.....lb.	.90	1.25	1.25	.90
.62	.57	.57	.57	Rosin Oil, 50 gal bbls, first run .....gal.	.57	.58	.58	.57
.64	.60	.62	.62	Second run.....gal.	.60	.61	.61	.60

Rosin

				Rosins 600 lb bbls 280 lb...unit			
9.25	7.45	9.75	8.20	B.....	.....	5.42½	7.75	5.42½
9.25	7.70	9.80	8.25	D.....	.....	5.50	8.00	5.50
9.27	8.30	9.95	8.60	E.....	.....	5.52½	8.17	5.52½
9.27	8.40	10.10	8.65	F.....	.....	5.55	8.45	5.55
9.45	8.40	10.10	8.75	G.....	.....	5.60	8.45	5.60
9.50	8.40	10.10	8.75	H.....	.....	5.60	8.55	5.60
9.50	8.40	10.15	8.80	I.....	.....	5.62½	8.58	5.62½
9.55	8.45	10.15	8.85	K.....	.....	5.62½	8.65	5.62½
9.85	8.50	10.30	8.85	M.....	.....	5.65	8.80	5.65
10.30	8.93	11.00	9.15	N.....	.....	6.10	8.95	6.05
11.30	9.00	11.65	10.15	WG.....	.....	7.35	9.25	6.85
12.30	9.30	12.65	10.40	WW.....	.....	8.35	9.85	7.85
30.00	24.00	30.00	24.00	Rotten Stone, bags mines....ton	24.00	20.00	30.00	18.00
.08	.05	.08	.07	Lump, imported, bbls.....lb.	.05	.07	.07	.05
.12	.09	.12	.09	Selected bbls.....lb.	.09	.12	.12	.09
.05	.02	.05	.02	Powdered, bbls.....lb.	.02	.05	.05	.02
.05	.04½	.05	.04½	Sago Flour, 150 lb bags.....lb.	.04½	.05	.05	.04½
1.00	1.00	.....	.....	Sal Soda, bbls wks.....100 lb.	.....	1.00	1.00	1.00
24.00	19.00	20.00	19.00	Salt Cake, 94-96% c-1 wks. .ton	17.75	19.00	24.00	17.75
21.00	12.00	17.00	15.00	Chrome .....ton	15.00	17.00	25.00	15.00
.06½	.06½	.06½	.06½	Saltpetre, double refd granular 450-500 lb bbls.....lb.	.06½	.06½	.06½	.06½
.01½	.01½	.01½	.01½	Satin, White, 500 lb bbls.....lb	.....	.01½	.01½	.01½
.61	.47	.62½	.49	Shellac Bone dry bbls.....lb.	.28	.33	.47	.28
.45	.40	.55	.45	Garnet, bags.....lb.	.24	.28	.40	.24
.47	.39	.58	.47	Superfine, bags.....lb.	.21	.29	.39	.21
.44	.36	.55	.42	T. N. bags.....lb.	.19	.26	.34	.19
.57	.53	.57	.53	Schaeffer's Salt, kegs.....lb.	.53	.57	.57	.53
11.00	8.00	11.00	8.00	Silica, Crude, bulk mines....ton	8.00	11.00	11.00	8.00
30.00	22.00	30.00	22.00	Refined, floated bags.....ton	22.00	30.00	30.00	22.00
32.00	32.00	.....	.....	Air floated bags.....ton	.....	32.00	32.00	32.00
40.00	32.00	40.00	32.00	Extra floated bags.....ton	32.00	40.00	40.00	32.00
22.00	15.00	22.00	15.00	Soapstone, Powdered, bags f. o. b. mines.....ton	15.00	22.00	22.00	15.00

Soda

				Soda Ash, 58% dense, bags c-1 wks.....100 lb.	.....	1.40	1.40	1.40
1.40	1.40	1.40	1.40	58% light, bags.....100 lb.	.....	1.34½	1.34½	1.34½
1.34½	1.34½	2.29	2.40	Contract, bags c-1 wks.100 lb.	.....	1.32	1.32	1.32
1.32	1.32	1.32½	1.32½	Soda Caustic, 76% grnd & flake drums.....100 lb.	.....	3.35	3.35	3.35
3.35	3.35	4.21	4.16	76% solid drs.....100 lb.	.....	2.90	2.95	2.90
2.95	2.95	3.91	3.76	Contract, c-1 wks.....100 lb.	.....	2.90	2.90	2.90
2.90	2.90	3.00	3.00	Sodium Acetate, tech....450 lb. bbls wks.....lb.	.05	.05½	.05½	.04
.06½	.04½	.05	.04½	Arsenate, drums.....lb.	.18	.19	.19	.18
.19	.18	.....	.....	Arsenite, drums.....gal.	.75	1.00	1.00	.75
1.50	.75	.....	.....	Bicarb, 400 lb bbl NY..100 lb.	.....	2.41	2.41	2.41
2.41	2.41	2.41	2.41					

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Prices Current and Comment

Purchasing Power of the Dollar: 1926 Average—$1.00 - 1929 Average $1.039 - Jan. 1929 $1.026 - Oct. 1930 $1.203

ducers for 1931, but to date only a small portion of the usual tonnage has been placed. Present shipments specially to the corrugated box manufacturers are fair and the textile centers are showing up better. A slight competitive position in the water-white grade has developed.

Sodium Sulfide — Occupies a very firm price position and shipments are entering consuming channels in a very satisfactory manner.

Sulfur — Acid producers are still curtailing somewhat on tonnages but in other fields tonnages are said to be holding to fairly high levels.

Superphosphate — Production of 80 companies in 170 plants during August totalled 335,463 tons compared with 366,322 tons during July and 364,961 tons during August 1929. Production for first eight months amounted to 3,065,613 tons compared with 2,848,763 tons last year. Stocks on hand at the end of August amounted to 1,204,680 tons as compared with 1,071,028 tons at the end of July and 1,084,381 tons at the end of August 1929. In the form of based goods stocks at the end of August amounted to 568,374 tons against 607,721 tons a year ago.

Tanning Materials — Chestnut continued in a strong technical position due to lack of surplus stocks. Cutch demand is reported fair and at unchanged prices. Sharp reductions were effected in myrobalans, j2 now being quoted at $22-$22.50 a ton and R2 $21-$21.50 a ton. Nutgalls, stocks are said to be low but with demand only fair no immediate price changes appear imminent.

Quebracho — Some unsettlement in this market occurred with the uprising in Brazil, but importers report that no difficulty has been experienced in obtaining supplies regularly. Wattle bark prices were slightly easier with material being freely offered at $40-$41 a ton.

Tin Salts — After considerable weakness due to the soft position of the metal the price structure established itself at 26c-28½c a lb. Consumption in the textile trade has been rather light during the past few weeks. The prevailing tetrachloride prices are 19¼c-20½c a lb. depending upon quantity.

Turpentine — This market has shown a fair degree of firmness during the past month, any weaknesses occuring early in the month; were made up in the last few days. Total consumption figures for 1929 are announced as being 5,622,695 gal. while exports ending March 31 for the previous 12 months amounted to 16,940,-179 gal. compared with 13,859,179 gal. the year previous. Imports for the same

1929 High	1929 Low	1928 High	1928 Low		Current Market	1930 High	1930 Low
.07½	.07	.07	.06½	Bichromate, 500 lb cks wks.lb.	.07	.07½	.07	.07
.04	.04	.04	.04	Bisulfite, 500 lb bbl wks....lb.	.....	.04	.04	.04
1.35	1.30	1.35	1.30	Carb. 400 ib bbls NY..100 lb.	.....	2.30	2.30	2.30
.11	.06½	.06½	.05½	Chlorate, ... wks..lb.	.05½	.07½	.08	.05½
13.00	12.00	13.00	12.00	Chloride, technical.....ton	12.00	13.00	13.00	12.00
.20	.18	.20	.20	Cyanide, 96-98%, 100 & 250 lb drums wks.....lb.	.16	.17	.20	.16
.09	.08½	.09	.08½	Fluoride, 300 lb bbls wks...lb.	.08½	.08½	.09	.08½
.24	.22	.24	.22	Hydrosulfite, 200 lb bbls f. o. b. wks.....lb.	.22	.24	.24	.22
.05	.05	.05	.05	Hypochloride solution, 100 lb cbys.....lb.	.....	.05	.05	.05
3.05	2.50	3.05	2.65	Hyposulfite, tech, pea cyrs 375 lb bbls wks.....100 lb.	2.50	3.00	3.00	2.50
2.65	2.40	2.65	2.40	Technical, regular crystals 375 lb bbls wks....100 lb.	2.40	2.65	2.65	2.40
.45	.45	.45	.45	Metanilate, 150 lb bbls.... lb.	.....	.45	.45	.45
.02½	.02½	.....	.....	Monohydrate, bbls.....lb.	.....	.02½	.02½	.02½
.57	.54	57	.55	Naphthionate, 300 lb bbl...lb.	.54	.57	.57	.54
2.22½	2.09	2.45	2.12½	Nitrate, 92%, crude, 200 lb bags c-1 NY.....100 lb.	1.99	2.07	2.22½	1.99
.08	.07½	.08½	.07½	Nitrite, 500 lb bbls spot....lb.	.07½	.08	.08	.07½
.27	.25	.27	.25	Orthochlorotoluene, sulfonate, 175 lb bbls wks.....lb.	.25	.27	.27	.25
.42	.37	.23	.20	Oxalate Neut, 100 lb kegs..lb.	.37	.42	.42	.37
.22	.18	.22	.21	Perborate, 275 lb bbls.....lb.	.18	.20	.20	.18
3.55	3.25	3.55	3.25	Phosphate, di-sodium, tech. 310 lb bbls.....100 lb.	2.80	3.25	3.25	2.80
4.00	3.90	.....	.....	tri-sodium, tech, 325 lb bbls.....100 lb.	.....	3.60	4.00	3.50
.72	.69	.72	.69	Picramate, 100 lb kegs.....lb.	.69	.72	.72	.69
.12½	.12	.12½	.12	Prussiate, Yellow, 350 lb bbl wks.....lb.	.11½	.12	12½	.11½
.20	.15	.14	.13½	Pyrophosphate, 100 lb keg..lb.	.15	.20	.20	.15
1.65	1.65	1.45	1.20	Silicate, 60 deg 55 gal drs, wks .....100 lb.	.....	1.65	1.65	1.65
.80	.70	1.10	.85	40 deg 55 gal drs, wks .....100 lb.	.70	.80	.80	.70
.05½	.05	.05	.05	Silicofluoride, 450 lb bbls NY .....lb.	.04	.04½	.05½	.04
.43	.38	.49	.48½	Stannate, 100 lb drums....lb.	.. ..	.34	.43	.34
.29	.25	.29	.18	Stearate, bbls.....lb.	.25	29	.29	.25
.18	.16	.18	.16	Sulfanilate, 400 lb bbls.....lb.	.16	.18	.18	.16
.02½	.02½	.02½	.02½	Sulfate Anhyd, 550 lb bbls c-1 wks.....lb.	.02½	.02½	.02½	.02½
.02½	.02½	02½	.02½	Sulfide, 80% crystals, 440 lb bbls wks.....lb.	.02½	.02½	.02½	.02½
.04	.03½	.04	.03½	62% solid, 650 lb drums 1c-1 wks.....lb.	.03	.03½	.03½	.03
.03½	.03	.03½	.03½	Sulfite, crystals, 400 lb bbls wks.....lb.	.03	.03½	.03½	.03
.76	.28½	.50	.40	Sulfocyanide, bbls.....lb.	.28	.35	.35	.28
1.40	.88	.85	.80	Tungstate, tech, crystals, kegs .....lb.	.....	.88	.88	.88
.40	.35	.40	.35	Solvent Naphtha, 110 gal drs wks.....gal.	.35	40	.40	.35
.01½	.01½	.01½	.01½	Spruce, 25% liquid, bbls.....lb.	.....	.01½	.01½	.01½
.01	.01	.01	.01	25% liquid, tanks wks.....lb.	.....	.01	.01	.01
.02½	.02	.02½	.02	50% powd, 100 lb bag wks lb.	.02	.02½	.02½	.02
4.12	3.82	4.42	3.07	Starch, powd., 140 lb bags .....100 lb.	3.62	3.92	4.02	3.62
4.02	3.72	4.32	2.97	Pearl, 140 lb bags.....100 lb.	3.52	3.72	3.92	3.52
.06½	.05½	.06½	.05½	Potato, 200 lb bags.....lb.	.05½	.06½	.06½	.05½
.06½	.05½	.06½	.05½	Imported bags.....lb.	.05½	.06½	.06½	.05½
.08½	08	.08½	.08	Soluble.....lb.	.08	.08½	.08½	.08
.10	.09½	.10	.09½	Rice, 200 lb bbls.....lb.	.09½	.10	.10	.09½
.07	.06½	.07	.06½	Wheat, thick bags.....lb.	.06½	.07	.07	.06½
.10	.09½	.10	.09½	Thin bags.....lb.	.09½	.10	.10	.09½
.07½	.07½	.07½	.07½	Strontium carbonate, 600 lb bbls wks.....lb.	.07½	.07½	.07½	.07½
.09½	.08½	.09	.08½	Nitrate, 600 lb bbls NY....lb.	.09	.09½	.09½	.09
1.25	1.25	.....	.....	Peroxide, 100 lb drs.....lb.	.....	1.25	1.25	1.25

Sulfur

2.05	2.05	2.05	2.05	Sulfur Brimstone, broken rock, 250 lb bag c-1.....100 lb.	.....	2.05	2.05	2.05
19.00	18.00	19.00	18.00	Crude, f. o. b. mines.....ton	18.00	19.00	19.00	18.00
2.40	2.40	2.40	2.40	Flour for dusting 99½%, 100 lb bags c-1 NY....100 lb.	.....	2.40	2.40	2.40
2.50	2.50	2.50	2.50	Heavy bags c-1.....100 lb.	.....	2.50	2.50	2.50
3.45	3.45	3.45	3.45	Flowers, 100%, 155 lb bbls c-1 NY.....100 lb.	.....	3.45	3.45	3.45
2.85	2.65	2.85	2.65	Roll, bbls 1c-1 NY.....100 lb.	2.65	2.85	2.85	2.65
.05½	.05	.05½	.05	Sulfur Chloride, red, 700 lb drs wks.....lb.	.05	.05½	.05½	.05
.04½	.03½	.04½	.03½	Yellow, 700 lb drs wks.....lb.	.03½	.04½	.04½	.03½
.08½	.07	.08½	.08	Sulfur Dioxide, 150 lb cyl....lb.	.07	.07½	.07½	.07
.19	.10	.19	.17	Extra, dry, 100 lb cyl.....lb.	.10	.12	.12	.10
.65	10	.65	.10	Sulfuryl Chloride, 600 lb dr...lb.	.10	.65	.65	.10
15.00	12.00	15.00	12.00	Talc, Crude, 100 lb bgs NY...ton	12.00	15.00	15.00	12.00
18.00	16.00	18.00	16.00	Refined, 100 lb bgs NY..ton	16.00	18.00	18.00	16.00
25.00	18.00	35.00	30.00	French, 220 lb bags NY...ton	18.00	22.00	22.00	18.00
45.00	35.00	45.00	38.00	Refined, white, bags....ton	35.00	40.00	40.00	35.00
50.00	40.00	50.00	40.00	Italian, 220 lb bags NY...ton	40.00	50.00	50.00	40.00
55.00	50.00	55.00	50.00	Refined, white, bags....ton	50.00	55.00	55.00	50.00
10.00	9.00			Superphosphate, 16% bulk, wks.....ton	8.50	8.75	9.50	8.50
.....	.....			Triple bulk, wks.....unit	.....	.65	.65	.65
4.50&10	4.00&10	5.10&10	4.65&10	Tankage Ground NY.....unit	.....	3.60&10	4.00&10	3.25&10
4.80&10	3.75&10	4.80&10	3.90&10	High grade f.o.b. Chicago.unit	.....	3.75&10	3.85&10	3.35&10
4.80&10	4.35&10	5.00&10	4.60&10	South American cif.....unit	.....	3.70&10	4.25&10	3.25&10
.05½	.04½	.05	.04½	Tapioca Flour, high grade bgs.lb.	.05½	.05½	.05½	.05½
.04½	.03½	.04	.03½	Medium grade, bags.....lb.	.04½	.04½	.04½	.04½
.27	.26	.27	.26	Tar Acid Oil, 15%, drums....gal.	.24	.25	.27	.24
.30	.29	.30	.29	25% drums.....gal.	.26	.28	.30	.26

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Urea — Prices remain firm at established levels. Imports of this commodity are said to be larger this year than in the same period a year ago.

OILS AND FATS

Chinawood Oil — Conditions in this market are quiet and the price tendency is downward. Buyers were merely covering immediate requirements with current offerings being made at 5¾c tanks, Pacific Coast. Foreign advices report unusual heavy receipts at shipping points and this fact combined with poor demand exerted buyers to a bearish attitude on future prices. Imports for September amounted to 8,073,589 lbs., a rather significant drop from 16,593,454 lbs. for the same month in 1929.

Coconut Oil — Tankcar prices are being quoted at 4⅞c-5c for immediate shipment. The market remained quiet during the month with buyers showing little interest at these prices. Shipments from Mamila in September amounted to 10,868 metric tons and stocks on hand at the close of the month amounted to 13,817 tons.

Corn Oil — Prices on crude were being maintained at Western mill points, but sales were light and mostly for immediate delivery.

Palm Oil — Shortage in spot stocks exerted a steadying influence despite lack of interest on the part of buyers other than in small replacement lots.

Cottonseed Oil — Operators are apparently particularly cautious against making commitments on futures preferring to await further developments in other commodity markets before taking any definite stand on the market. Prices consequently were irregular, but on the whole the trend was upward. The work of picking the crop is said to be quite advanced and the movement to the oil mills is reported to be in good volume.

Degras — Jobbers are fairly active in primary markets and served to steady the market. Consumers are buying in small quantities and for immediate delivery only.

Linseed Oil — Conditions continue quiet in this commodity. A fairly large tonnage was moving into consuming channels covered by old contracts but new business was very light. Production of

1929 High	1929 Low	1928 High	1928 Low		Current Market	1930 High	1930 Low
				Terra Alba Amer. No. 1, bgs or			
1.75	1.15	1.75	1.15	bbls mills.....100lb.	1.15	1.75	1.15
2.00	1.50½	2.00	1.50	No. 2 bags or bbls...100lb.	1.50	2.00	2.00	1.50
.02½	.01	.02½	.02	Imported bags.....lb.	.01½	.01½	.01½	.01½
.09½	.09	.....	.....	Tetrachlorethane, 50 gal dr...lb.	.09	.09½	.09½	.09
.20	.20	.20	.20	Tetralene, 50 gal drs wks.....lb.	.....	.20	.20	.20
.24	.22	.24	.22	Thiocarbanilid, 170 lb bbl....lb.	.26½	.28½	.28½	.22
				Tin Bichloride, 50% soln, 100 lb				
.14¾	.13½	.17½	.14½	bbls wks.....lb.	.....	.12¾	.12¾	.12¾
.38	.33	.41½	.36½	Crystals, 500 lb bbls wks...lb.	.26	.28½	.34	.26
.48	.39	.58	.48	Metal Straits NY.....lb.	.....	.38	.38	.38
.56	.42	.75	53	Oxide, 300 lb bbls wks.....lb.	.....	.36	.42	.36
				Tetrachloride, 100 lb drs wks.				
.30½	.27½	.35½	.30½	.....lb.	.....	.19½	.20½	.19½
.50	.22	.40	.40	Titanium Dioxide 300 lb bbl..lb	.22	.....	.50	.22
.14	.07½	.14	.13½	Pigment, bbls.....lb.	.07½	.07¾	.07¾	.07½
.45	.45	.45	.40	Toluene, 110 gal drs.....gal.	.....	.40	.40	.40
.40	.40	.45	.35	8000 gal tank cars wks....gal.	.....	.35	.35	.35
.94	.90	.94	.90	Toluidine, 350 lb bbls.....lb.	.90	.94	.94	.90
.32	.31	.32	.31	Mixed, 900 lb drs wks.....lb.	.31	.32	.32	.31
.95	.85	.90	.85	Toner Lithol, red, bbls.....lb.	.90	.95	.95	.90
.80	.70	.80	.70	Para, red, bbls.....lb.	.....	.80	.80	.80
1.55	1.50	1.80	1.70	Toluidine .....lb.	1.50	1.55	1.55	1.50
.36	.32	3.90	3.60	Triacetin, 50 gal drs wks.....lb.	.32	.36	.36	.32
.10½	.10	.....	.....	Trichlorethylene, 50 gal dr...lb.	.10	.10½	.10½	.10
.60	.55	.....	.....	Triethanolamine, 50 gal drs...lb.	.40	.42	.42	.40
.45	.33	.50	.36	Tricresyl Phosphate, drs.....lb.	.33	.45	.45	.33
.70	.58	.73	.69	Triphenyl guanidine.....lb.	.58	.60	.60	.58
.75	.60	.75	.70	Phosphate, drums.....lb.	.60	.70	.70	.60
2.00	1.75	3.00	2.50	Tripoli, 500 lb bbls.....100 lb.	.75	2.00	2.00	1.75
.65	.51½	.66½	.50½	Turpentine Spirits, bbls.....gal.	.41	.42	.61½	.41
.57	.49	.59	.46	Wood Steam dist. bbls....gal.	.36	.39	.52	.36
.30	.15	.20	.18	Urea, pure, 112 lb cases.....lb	.15	.17	.17	.15
105.00	98.00			Fert. grade, bags c.i.f. ....ton	....	108.00	108.00	108.00
106.30	99.30			c. i. f. S. points.....ton	.....	109.30	109.30	109.30
				Valonia Beard, 42%, tannin				
55.00	42.00	76.00	55.00	bags.....ton	.....	40.00	40.00	39.50
35.00	30.00	55.00	58.00	Cups, 30-31% tannin.....ton	.....	25.00	27.00	25.00
43.00	35.00	64.00	45.00	Mixture, bark, bags.....ton	.....	30.00	32.50	30.00
2.05	2.00	2.10	1.75	Vermillion, English, kegs....lb..	1.75	1.80	2.05	1.75
1.00	1.00	.....	.....	Vinyl Chloride, 16 lb cyl.....lb.	.....	1.00	1.00	1.00
49.75	43.50	76.00	49.75	Wattle Bark, bags.....ton	40.00	41.00	47.75	40.00
				Extract 55%, double bags ex-				
.06½	.06½	.06½	.05½	dock.....lb.	.....	.06½	.06½	.06½
				Whiting, 200 lb bags, c-l wks				
1.25	1.00	1.25	1.25	.....100 lb.	.....	1.00	1.00	1.00
13.00	13.00	13.00	13.00	Alba, bags c-l NY.....ton	.....	13.00	13.00	13.00
1.35	1.35	1.35	1.35	Gilders, bags c-l NY...100 lb.	.....	1.35	1.35	1.35
.33	.33	.32	.32	Xylene, 10 deg tanks wks. .gal.	.....	.28	.31	.28
.32	.30	.32	.30	Commercial, tanks wks...gal.	.25	.30	.33	.25
.38	.38	.38	.38	Xylidine, crude.....lb.	.....	.37	.38	.37

Zinc

				Zinc Ammonium Chloride powd.,			
5.75	5.25	.05½	5.85	400 lb bbls.....100 lb.	5.25	5.75	5.75	5.25
.11	.10½	.10	.09½	Carbonate Tech, bbls NY..lb.	.10½	.11	.11	.10½
				Chloride Fused, 600 lb drs.				
.06	.05½	.06	.06	wks.....lb.	.05½	.06	.06	.05½
.06½	.06½	.06½	.06½	Gran., 500 lb bbls wks.....lb.	.05½	.06	.06½	.05½
3.00	3.00	3.00	3.00	Soln 50%, tanks wks...100 lb.	.....	3.00	3.00	3.00
.41	.40	.41	.40	Cyanide, 100 lb drums.....lb.	.38	.39	.41	.38
1.00	1.00			Dithiofuroate, 100 lb dr....lb.	.....	1.00	1.00	1.00
.08½	.08½	.09	.09	Dust, 500 lb bbls c-l wks...lb.	.06½	.07	.11	.06½
				Metal, high grade slabs c-l				
6.45	6.45½	6.40	6.07½	NY.....100 lb.	.....	4.30	6.45	4.30
.07½	.07	.07½	.07½	Oxide, American bags wks..lb.	.06½	.07	.07½	.06½
.11½	.09½	.12½	.10½	French, 300 lb bbls wks...lb.	.09½	.11½	.11½	.09½
1.25	1.25	.....	.....	Perborate, 100 lb drs.....lb.	.....	1.25	1.25	1.25
1.25	1.25	.....	.....	Peroxide, 100 lb drs.....lb.	.....	1.25	1.25	1.25
.26	.25	.....	.....	Stearate, 50 lb bbls.....lb.	.23½	.24	.26	.23½
.03¾	.03	.03¾	.03½	Sulfate, 400 bbl wks.....lb.	.03	.03½	.03½	.03
.32	.30	.32	.30	Sulfide, 500 lb bbls.....lb.	.30	.32	.32	.30
.30	.28	.30	.29	Sulfocarbolate, 100 lb keg..lb.	.28	.30	.30	.28
.03	.02½	.03	.02½	Zirconium Oxide, Nat. kegs...lb.	.02½	.03	.03	.02½
.50	.45	.50	.45	Pure kegs.....lb.	.45	.50	.50	.45
.10	.08	.10	.08	Semi-refined kegs.....lb.	.08	.10	.10	.08

Oils and Fats

.13½	.13	.14½	.13	Castor, No. 1, 400 lb bbls.....lb.	.11½	.12	.13½	.11½
.13	.12½	.14	.12½	No. 3, 400 lb bbls.....lb.	.11	.11½	.13	.11
.15	.14	.17	.14	Blown, 400 lb bbls.....lb.	.12	.13	.15	.12
.16	.14½	.17	.14½	China Wood, bbls spot NY...lb.	.07½	.10½	.13	.07½
.15	.13½	.14½	.14½	Tanks, spot NY.....lb.	.06½	.07	.11½	.06½
.14½	.12½	.14½	.12½	Coast, tanks, ...lb.	.05½	.06½	.10½	.05½
.10½	.10½	.11½	.10½	Cocoanut, edible, bbls NY....lb.	.....	.10½	.10½	.10½
.09½	.07½	.10	.09½	Ceylon, 375 lb bbls NY....lb.	.06½	.06½	.08½	.06½
.08½	.06½	.09	.08½	8000 gal tanks NY.....lb.	.05½	.06	.07	.05½
.10	.09½	.10½	.09½	Cochin, 375 lb bbls NY....lb.	.07½	.07½	.09½	.07½
.09½	.08½	.09½	.08½	Tanks NY.....lb.	.....	.07	.08½	.07
.09½	.07½	.10	.08½	Manila, bbls NY.....lb.	.06½	.07	.08½	.06½
.08½	.06½	.08½	.08	Tanks NY.....lb.	.05½	.05½	.07½	.05½
.08	.06½	.08½	.07½	Tanks, Pacific Coast.....lb.	.05½	.06	.07	.05½

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Prices Current and Comment

Purchasing Power of the Dollar: 1926 Average—$1.00 - 1929 Average $1.039 - Jan. 1929 $1.026 - Oct. 1930 $1.203

oil for quarter ending September 30 amounted to 108,143,666 lbs. compared with 191,977,215 lbs. during the corresponding period a year ago. Stocks on hand totalled 53,145,328 lbs. against 82,991,738 lbs. in 1929 and 78,623,882 lbs. in 1928. Flaxseed prices were irregular and shipments from the Argentine small but opinions were favorable on present crop conditions. Demand in the northwest was good with offerings light.

Menhaden Oil — Several factories in the Chesapeake Bay section have temporarily withdrawn from the market pending further developments. The spot market continues nominal with offerings being made at 20c a gal. f. o. b. Baltimore, but without arousing buyers into a purchasing mood. Refined is holding well with spot stocks light.

Neatsfoot Oil — Some slight shading was being done on orders of any appreciable size, but as a whole the market maintained a fairly steady tone during the month.

Oleo Oil — While purchasing for export was reported in satisfactory volume the domestic market was quiet at existing prices.

Olive Oil — Moderate trading in the denatured grades was reported but actual transactions were small and for prompt delivery. Trading in the foots was likewise in modest volume, but light offerings from primary markets held prices in line.

Peanut Oil — Importations for the month of August totalled 4,427,970 lbs. Domestic crude remained firm with a fair inquiry for future delivery. Prices are unchanged.

Pine Oil — Small lot trading was the rule buyers covering only when necessary to maintain stocks required for immediate consumption.

Rapeseed Oil — Jobbers were fairly active but actual consumers were still withholding from the market awaiting further developments. Crop news from the producing areas in India, Austria and Roumania was of a favorable nature.

Red Oil — Withdrawals against old contracts were satisfactory but spot sales were small.

Salmon Oil — Prices are nominal in the face of little demand from consumers.

Soy bean Oil — Quotations were firm with demand light.

Stearic Acid — A steady tone to the market was maintained through support from the jobbing trade. Consumers are only entering the market to cover replacements. Some improvement is expected shortly as stocks in process are below normal.

1929 High	1929 Low	1928 High	1928 Low		Current Market	1930 High	1930 Low
				Cod, Newfoundland, 50 gal bbls			
.64	.57½	.69	.63	.....gal.	.....	.52	.56	.52
.60	.60	.63	.60	Tanks NY.....gal.	.48	.50	.62	.48
				Cod Liver see Chemicals.....				
.05½	.042	.06½	.05½	Copra, bags.....lb.	.....	.039	.046	.039
.10¾	.09½	.11	.10	Corn, crude, bbls NY.....lb.	.....	.08½	.10	.08½
.09½	.07½	.10	.08¾	Tanks, mills.....lb	.06½	.07	.08	.06½
.11¾	.10½	.12½	.11¼	Refined, 375 lb bbls NY....lb.	.....	.09¼	.10½	.09½
.11	.09	.11½	.10¼	Tanks.....lb.	.....	.08	.10	.08
.09	.08½	.09½	.07½	Cottonseed, crude, mill.....lb.	.06½	.07	.07½	.06½
.1075	.085	10 65	.09½	PSY 100 lb bbls spot....lb.	.076	.08	.088	.076
.1080	.088	10.75	.09½	Nov.—Dec .....lb.	.....	.073	.095	.073
				Degras, American, 50 gal bbls				
.05	.03½	.05	.04½	NY.....lb.	03½	.04½	.04½	.03½
.05¾	.04½	.05¾	.04½	English, brown, bbls NY ...lb.	04½	.05	.05	.04½
.05½	.05	.05½	.05½	Light, bbls NY .....lb.	05	.05½	.05½	.05
				Dog Fish, Coast Tanks.....gal.	.....	.32	.34	.32
				Greases				
.08½	.06	.08½	.07	Greases, Brown.....lb.	.04	.04½	.06½	.04
.08½	.06½	.08½	.07	Yellow.....lb.	.04½	.05	.07½	.04½
.11½	.07½	.11	.09½	White, choice bbls NY.....lb	.04½	.05	.08½	.04½
		.42½	.40	Herring, Coast, Tanks.....gal.	.....	Nom.	.....	.....
Nom.	.....	Nom.	.09½	Horse, bbls.....lb.	.05½	Nom.	Nom.	.05½
.15½	.14¼	.16½	.15½	Lard Oil, edible, prime.....lb.	.13	.15½	.13¾	.12½
.13½	.12	.13½	.12	Extra, bbls.....lb.	.....	.10	.12	.10
.13½	.11¾	.13	.11	Extra No. 1, bbls.....lb.	.09½	.09¾	.11	.09¾
.162	.105	10.8	10.0	Linseed, Raw, five bbl lots...lb.	.....	.102	.146	.102
.158	.101	10.4	9.6	Bbls c-l spot.....lb.	.....	.098	.142	.098
.15	.093	9.6	8.8	Tanks.....lb.	.....	.092	.134	.092
.52	.45	.48	.40	Menhaden Tanks, Baltimore.gal.	.21	.22	.50	.21
.09	.09	.09	.09	Blown, bbls NY.....lb.	.07½	.08	.09	.07½
.70	.70	.70	.67	Extra, bleached, bbls NY..gal.	.52	.53	.70	.52
.64	.63	.64	.63	Light, pressed, bbls NY...gal.	.46	.47	.64	.46
.67	.66	.67	.66	Yellow, bleached, bbls NY.gal.	.49	.50	.67	.49
				Mineral Oil, white, 50 gal bbls				
.60	.40	.60	.40	.....gal.	.40	.60	.60	.40
1.00	.95	1.00	.95	Russian, gal.....gal.	.95	1.00	1.00	.95
.19	.18½	.19	.18½	Neatsfoot, CT, 20° bbls NY lb.	.16½	.16¾	.17¾	.16½
.13½	.12	.13½	.12	Extra, bbls NY.....lb	.09½	.10	.11½	.09¾
.15½	.13½	.16½	.15½	Pure, bbls NY.....lb.	.....	.12	.13½	.12
.11½	.10¾	.17¾	.11¾	Oleo, No. 1, bbls NY.....lb.	.08¾	.09½	.12½	.08⅞
.11½	.10	.15½	.11	No. 2, bbls NY..... ..lb.	.08¾	.09	.11	.08¾
.10½	.09¾	.14	.10	No. 3, bbls NY.....lb.	.09	.09¼	.10½	.09
1.40	1.05	1.40	1.18	Olive, denatured, bbls NY...gal.	.....	.80	1.00	.70
2.00	1.95	2.00	1.75	Edible, bbls NY.....gal.	1.75	2.00	2.00	1.75
.11½	.08½	.11	.09¾	Foots, bbls NY.....lb.	.06¾	.06¾	.08	.06
.09	.08	.09½	.08½	Palm, Kernel, Casks.....lb.	.06	.06½	.08½	.06
.09	.07½	.09½	.07½	Lagos, 1500 lb casks.....lb.	.05¾	.06	.07½	.05¾
.08¾	.07	.08¾	.07	Niger, Casks.....lb.	.05½	.05¼	.07½	.05½
Nom.	.....	.12½	.12	Peanut, crude, bbls NY.....lb.	.....	Nom.	Nom.	.....
.15	.14½	.17	.14½	Refined, bbls NY.....lb.	.14½	15	.15	.14½
.20	.15	.21	.13	Perilla, bbls NY.....lb.	.11	.12	.14½	.10½
.15¾	.13	.15½	.10½	Tanks, Coast.....lb.	.10½	.10½	.11½	.10
1.75	1.70	1.75	1.70	Poppyseed, bbls NY.....gal.	1.70	1.75	1.75	1.70
1.04	1.04	1.06	1.01	Rapeseed, blown, bbls NY...gal.	.74	.78	1.00	.74
.90	.82	.92	.83	English, drms. NY.....gal.	.....	.75	.82	.75
.88	.72	.90	.81	Japanese, drms. NY.....gal.	.56	.58	.70	.56
.11½	.10½	.10¾	.09½	Red, Distilled, bbls.....lb.	.08¾	.09	.10¾	.08⅞
10½	.09¼	.09½	.08	Tanks.....lb.	.08	.08¼	.09½	.08
.44	.42	.50	.42	Salmon, Coast, 8000 gal tks..gal.	.....	Nom.	.44	.42
.51	.45	.50	.41	Sardine, Pacific Coast tks...gal.	.20	.21	.42	.20
.12	.11¼	.13½	.12	Sesame, edible, yellow, dos...lb.	.....	.09	.12	.09
.12½	.12½	.15	.12½	White, dos.....lb.	.....	.10	.12½	.10
.40	.40	.40	.40¾	Sod, bbls NY.....gal.	.....	.40	.40	.40
		.....	.....	Soy Bean, crude.....				
.10¾	.09	.09¾	.09	Pacific Coast, tanks.....lb.	.07	.08	.09½	.07
				Domestic tanks, f.o.b. mills,				
.10½	.08½			.....lb.	.07	.08	.08½	.07
.12¾	.11¼	.12½	.12	Crude, bbls NY.....lb.	.10	.10½	.10¾	.10
.11½	.10½	.10¾	.10½	Tanks NY.....lb.	.09	.09½	.09¾	.09
.13½	.13¼	.13¾	.13¼	Refined, bbls NY.....lb.	.13	.13¼	.13½	.13
.85	.84	.85	.84	Sperm, 38° CT, bleached, bbls NY.....gal.	.84	.85	.85	.84
.80	.79	.80	.79	45° CT, bleached, bbls NY gal.	.79	.80	.80	.79
				Stearic Acid, double pressed dist				
.18½	.15½	.18½	.11	bags.....lb.	.13½	.14	.15	.13½
				Double pressed saponified bags				
.19	.15¾	.19	.11½	.....lb.	.14½	.15	.15½	.14½
20½	.17¾	.20½	.13½	Triple, pressed dist bags..lb	.15¾	.16	.17	.15½
.12	.09¼	.12½	.09½	Stearine, Oleo. bbls.....lb.	.08¼	.08¾	.09½	.08¼
.08¾	.07	.09½	.08½	Tallow City, extra loose.....lb.	.04¾	.05	.07¾	.04¾
.10½	.08	.10¾	.09½	Edible, tierces.....lb.	.05½	.06	.09¼	.05½
.12	.10¾	.12½	.11½	Tallow Oil, Bbls, c-1 NY...lb.	.08¾	.08¾	.11	.08½
.11	.09¾	.11¼	.10¼	Acidless, tanks NY.....lb.	.....	.08¼	.10	.08¼
Nom.	.08	Nom.	.08	Vegetable, Coast mats.....lb.	.06½	Nom.	Nom.	.06½
.12	.11	.'1	.....	Turkey Red, single bbls.....lb.	.10	.11	.12	.10
.16	.14	.16	.14	Double, bbls.....lb.	.13	.15	.16	.13
				Whale, bleached winter, bbls				
.80	.74	.80	.78	NY.....gal.	.....	.74	.74	.74
.82	.76	.82	.80	Extra, bleached, bbls NY..gal.	.77	.77½	.76	.76
.78	.73	.78	.76	Nat. winter, bbls NY.....gal.	.71	.72	.73	.73

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"WE"—Editorially Speaking

Edgar L. Heermance's stirring arraignment of many of the business practices now prevalent is of special importance at this time to the leaders and executives of the chemical industry. "Economic Effects of Cut Throat Competition" is a frank discussion of the ills besetting American business to-day and offers some interesting and concrete suggestions for their correction through the medium of trade industry conferences. Edgar L. Heermance, well known economist and writer on business subjects, is a graduate of Yale and pursued his graduate studies both at Yale and at the University of Edinburgh. For several years he remained in the ministry but for the past decade has been engaged in literary work exclusively. Some of his best known works are Democracy in the Church, Codes of Ethics and Ethics of Business. Although a native New Yorker, Mr. Heermance has made his residence at New Haven for many years.

Where is the Chemical Industry located? Statistics show that the industry is limited to well-defined centers and the bulk of production is to be found in a relatively few states. Sales efforts of producers of chemicals and manufacturers of equipment can be more intelligently directed with a proper understanding of the geographical make-up of the industry. Chemical Geography tells you where to concentrate sales programs for the best return on your investment.

Frankly, the figures furnished by insurance companies on the losses due to improper and careless handling of chemicals are amazing. Everywhere insurance companies are making a very determined effort to reduce the hazards from this cause. In "Safe Handling of Chemicals," by James C. Cook of the Schwenk Safety Device Corporation, a brief resume of the New York State compensation figures points out the absolute necessity of greater care in handling dangerous and corrosive chemicals.

The World War is held responsible for a multitude of changes, good, bad and indifferent. On the right side of the ledger is the American assumption of outstanding leadership of the sulfur industry. Considerable concern has been felt in some quarters that our reserves were rapidly approaching depletion. That this is far from being the truth is shown in "No Sulfur Shortage," a detailed study of the sulfur industry.

COMING FEATURES

Cotton Cellulose. Lloyd Kitchel, Hercules Powder Co., traces the various steps in the manufacture of cotton cellulose and describes the many uses for this important product. An unusually interesting article on a very important and timely subject.

Naphtha or Naphthas? Today the term naphtha is obsolete and misleading. Improvements in refining have made available a large number of different types and grades each with special characteristics and uses. A. W. Vallentyne, American Mineral Spirits Co., reviews the growth and expansion of the Naphtha industry for Chemical Markets readers.

Our Changing Industrial Geography. Willard L. Thorp explains the geographical shift in the nation's industries in general and the chemical industry in particular.

Cost Accounting. D. A. Wilcox continues his series of articles on cost accounting in the chemical industry. A valuable contribution from one well versed in the science of intelligent financial control.

Welding in the Chemical Industry. Startling innovations in the art of welding specially applicable to equipment in the process industries are being introduced in the interest of economy and time-saving. D. D. Williams of the Linde Air Products Co. points out the numerous economic and technical advantages of welding in the industrial field.

"New Zinc Alloys," by Robert M. Curts of the New Jersey Zinc Co., is a subject of vital importance about which very little has been recorded in print so far. We feel very fortunate in being able to present Mr. Curts' article to CHEMICAL MARKETS' readers. Mr. Curts has spent the past five years in research and development of zinc alloys and therefore writes with the authority of an expert. There is a very distinct message of economy in this article that will appeal to a large number of executives.

Emulsions that will retain their characteristics for a long period of time have been at once the hope and despair of chemists. In "What Makes a Good Emulsion," H. Bennett of the Glyco Products Co. opens up a new field of investigation.

Fires in industrial chemicals presents one of the most difficult problems in fire prevention work. A little foresight is indeed much better that collecting insurance on a completely destroyed plant. "Fighting Fire in Chemicals," by C. B. White of the American LaFrance & Foamite Corporation, should receive close attention from every plant manager in the industrial chemical field.

Ten years ago Donald D. Wilkins went directly from Brooklyn Poly into the sales promotion department of the American Hard Rubber Company. Under his direction the application of hard rubber to many of the industry's problems has been successfully carried through. In "Hard Rubber Prevents Corrosion and Contamination" he outlines for plant executives several of the more important uses.

Our sincerest congratulations and best wishes to "Oxy-Acetylene Tips" of the Linde Air Products Co., on its one hundredth issue. One of our most pleasant tasks is reading many interesting and instructive house-and sales organs that reach us. They record a fairly accurate record of the startling progress being made in the industrial life of the nation.

We are heartily ashamed of our rightly contemporary Monsanto Current News"—just because Victor Williams, Monsanto's eastern sales-manager, won a raincoat at one of the Salesmens' Golf Tournament's is certainly no good reason for accusing him of getting slicker at the game.

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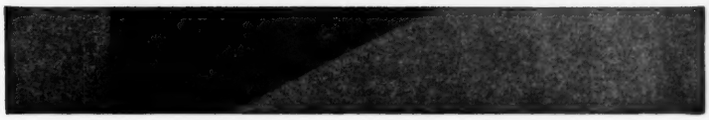

CHEMICAL MARKETS

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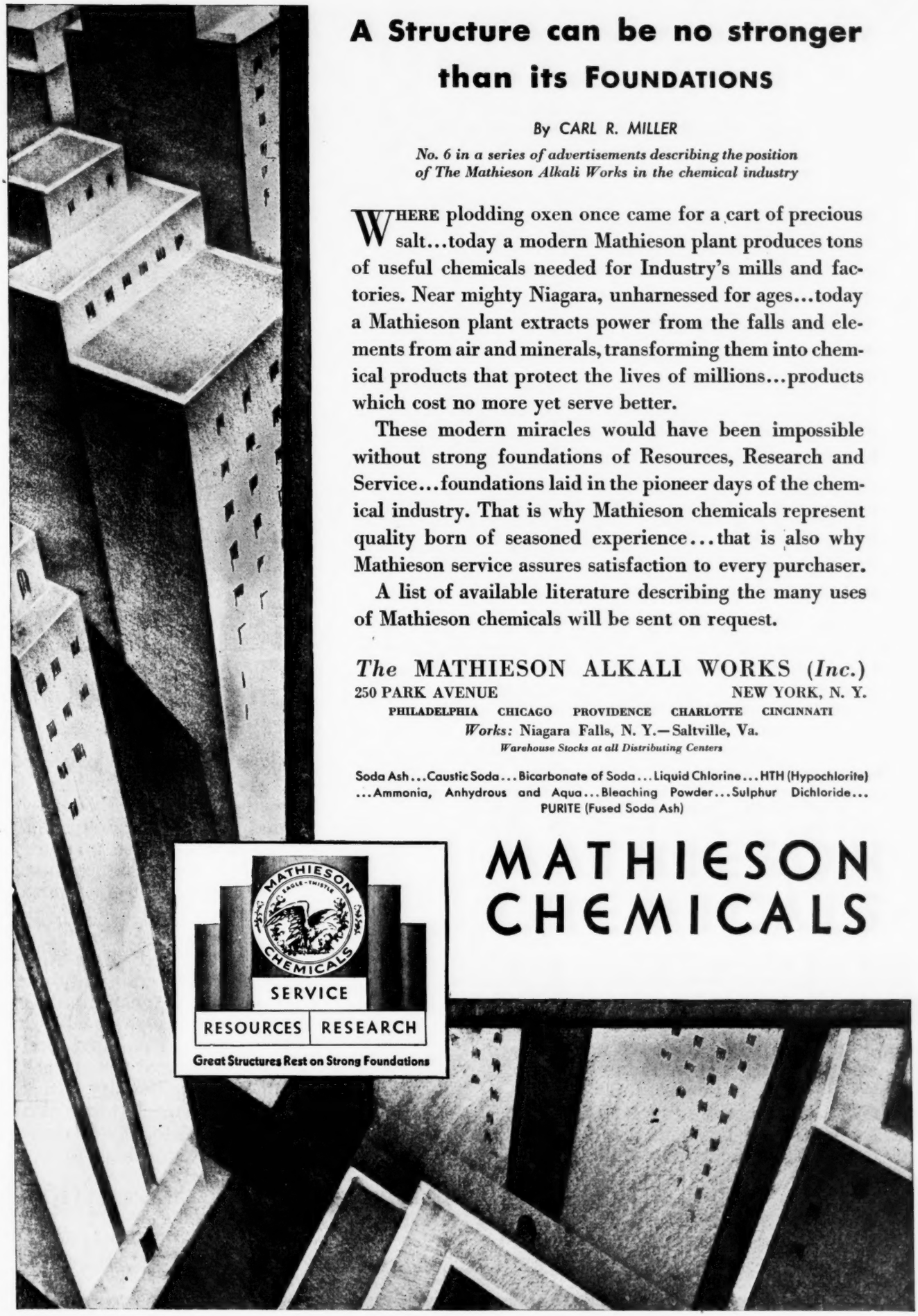

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By CARL R. MILLER

No. 6 in a series of advertisements describing the position of The Mathieson Alkali Works in the chemical industry

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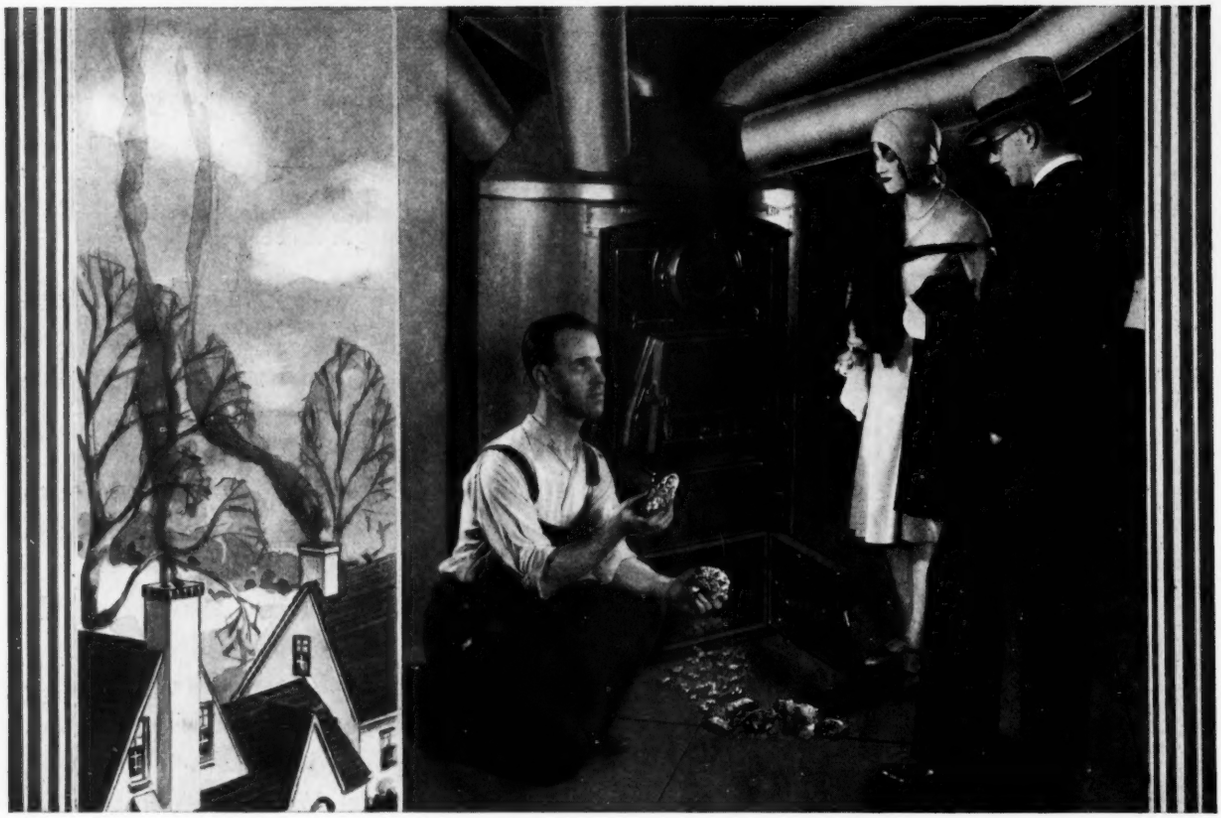

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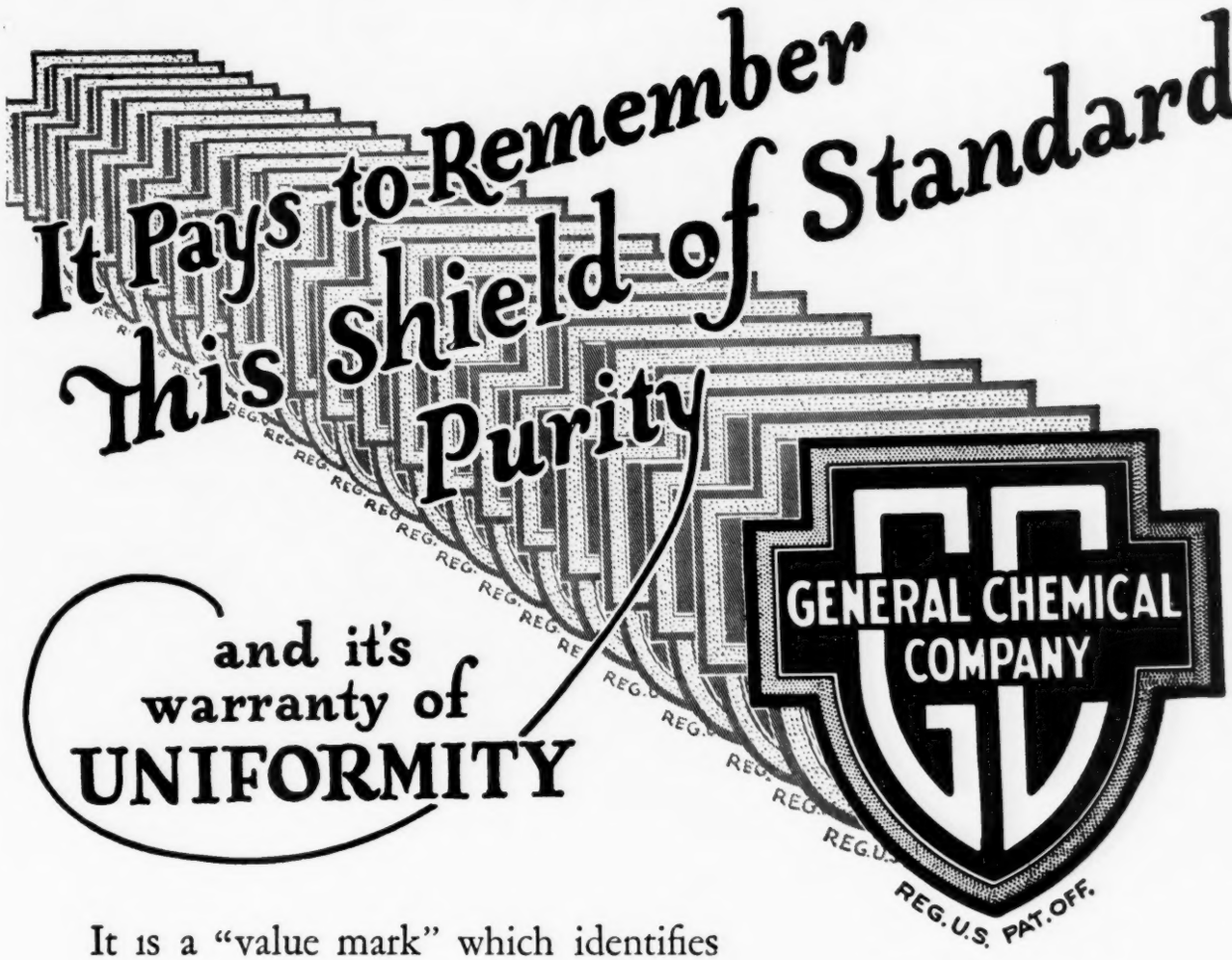

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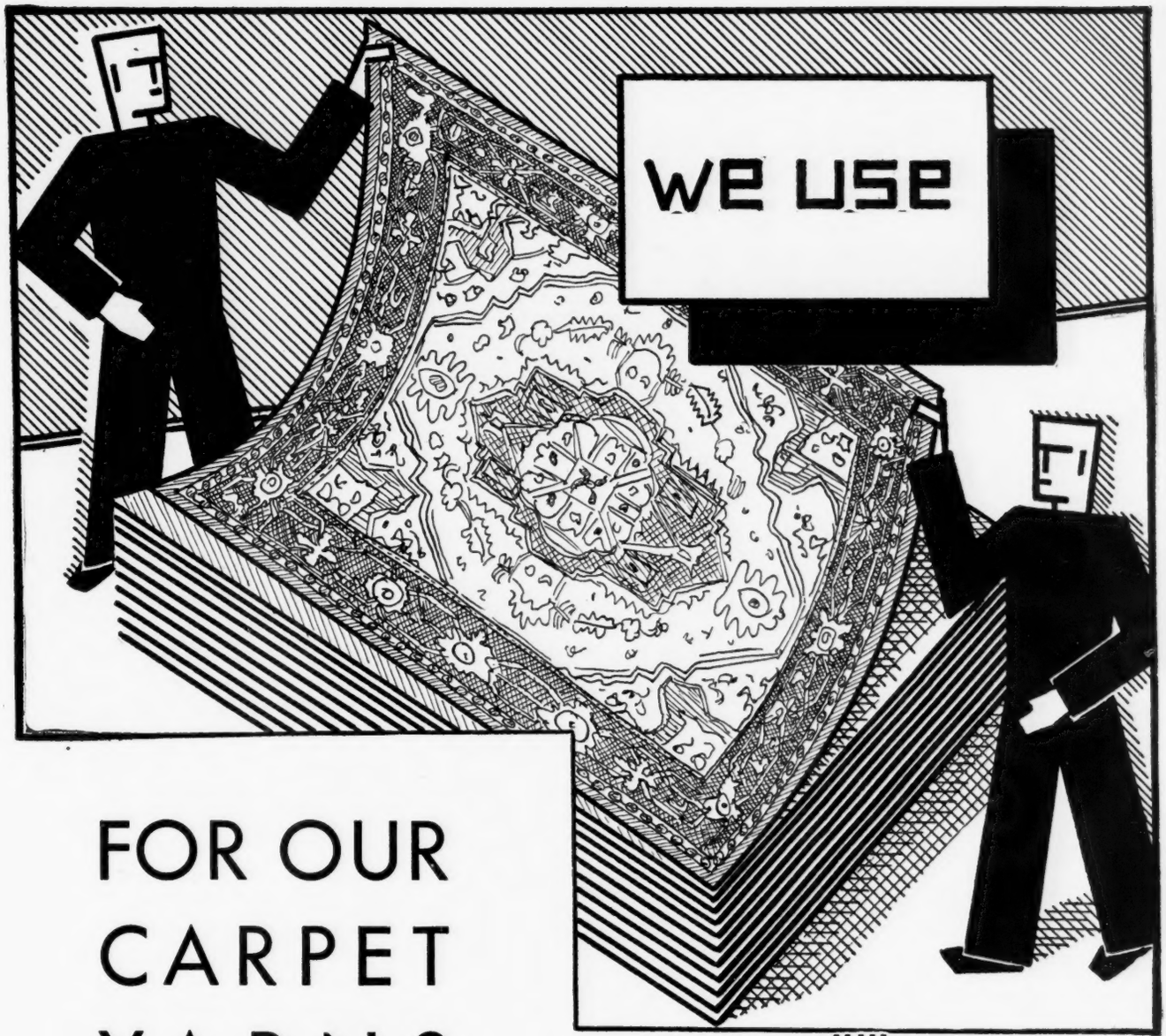

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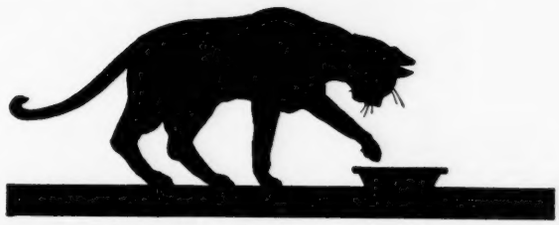

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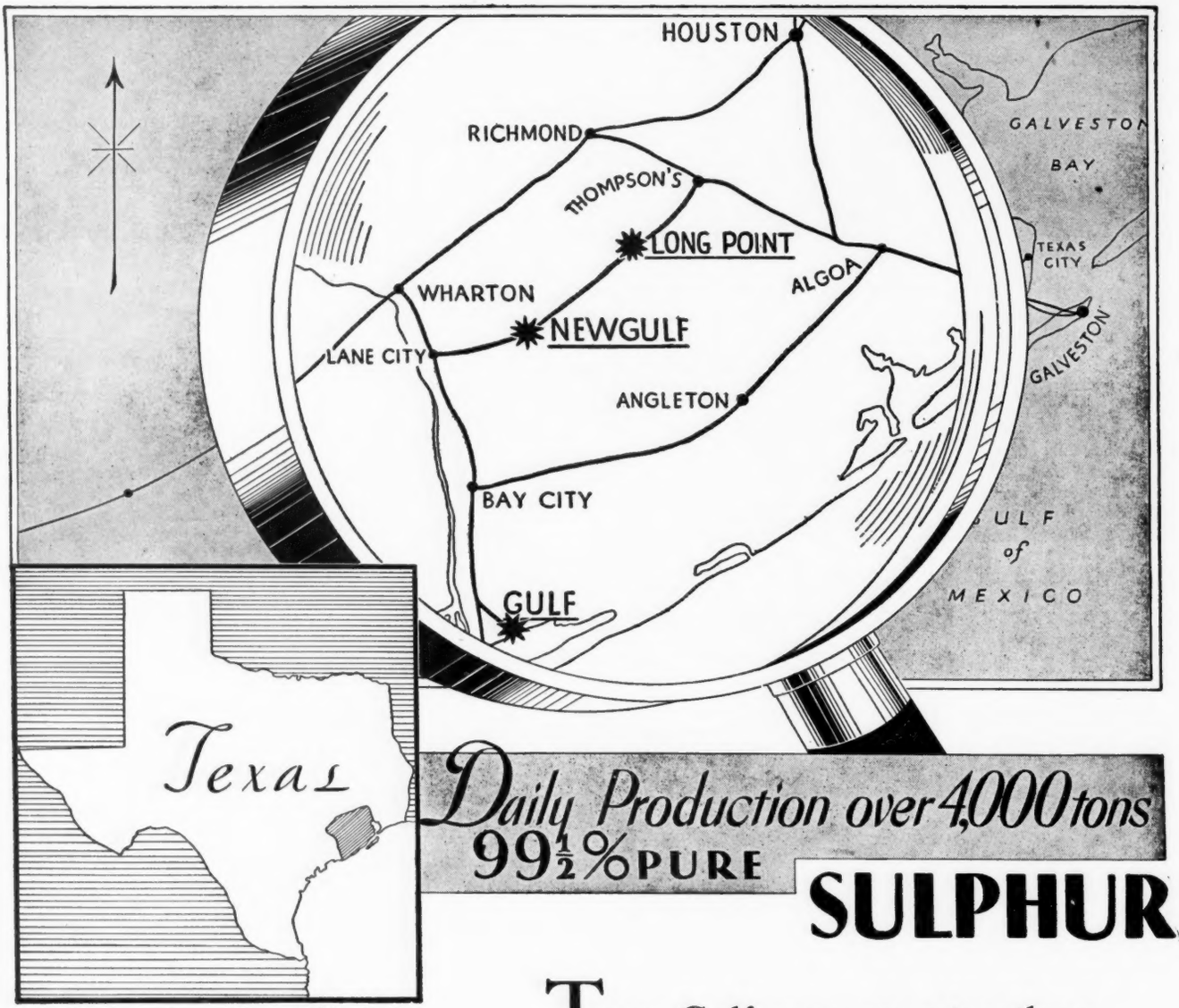

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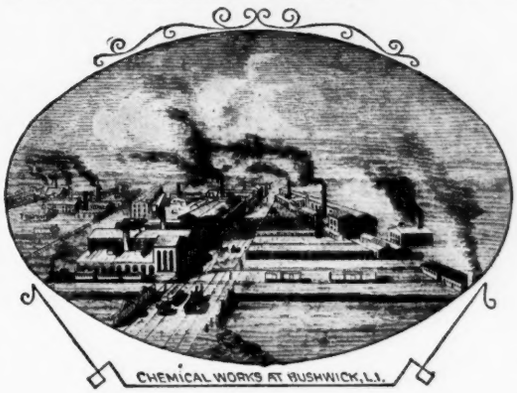

"... the illustrations we herewith give of the manufacture of chemicals, as carried on at the works of Martin Kalbfleisch's Sons, the largest establishment of the kind in the country, cannot fail to command particular attention, the more especially as their productions are used in nearly every manufacturing town in the country, and these or similar articles constitute an indispensable part of the stock of every chemist. "... started in 1829, there are now ... buildings and yards covering twenty acres of land on Newton Creek, at a point which can be reached by vessels drawing nine feet of water, but yet within the city limits of Brooklyn, N. Y. The firm also have extensive works at Bayonne, N. J. and Buffalo, N. Y., with which localities they have thought it best to divide their business on account of its rapid growth." *So says the Scientific American of November 20, 1880. At that time, Kalbfleisch was fifty-one years old.*

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200 Fifth Avenue, New York, N.Y.

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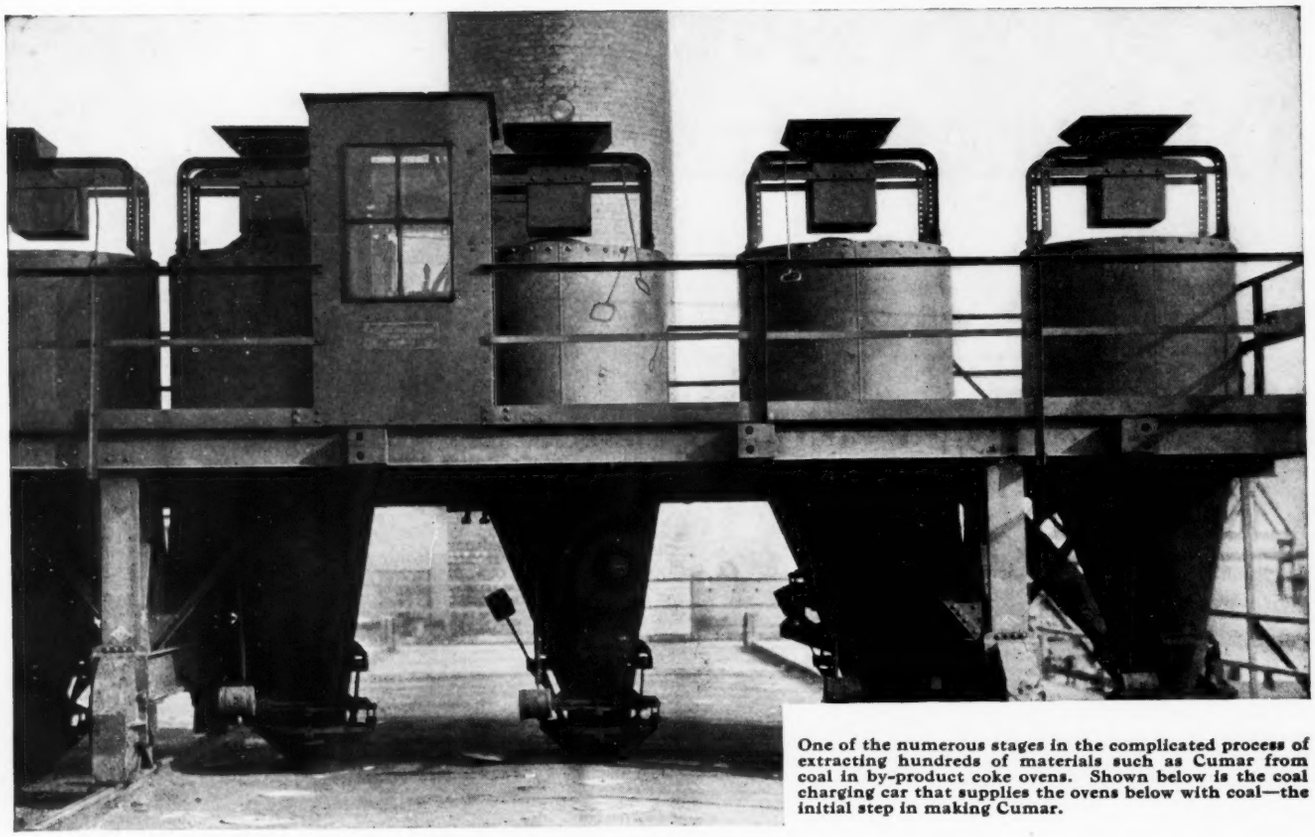

One of the numerous stages in the complicated process of extracting hundreds of materials such as Cumar from coal in by-product coke ovens. Shown below is the coal charging car that supplies the ovens below with coal—the initial step in making Cumar.

Only years of EXPERIENCE could have produced BARRETT CUMAR

AS the first domestic producer of paracoumarone resins, The Barrett Company has years of research and development experience back of it. Only such experience could produce Barrett's high quality paracoumarone-Cumar.

Numerous grades of Cumar were developed by Barrett to meet the special requirements of paint and varnish makers, rubber manufacturers and many other industries.

If you have a manufacturing process which may be improved by the use of Cumar, Barrett will help you solve your problem. The Barrett technical staff is at your service in developing new formulae.

The Barrett Company

40 Rector Street New York, N. Y.